The information in this booklet must not be given to the public

British Rail

Class 317/1 and 317/2 EMU Trains

Working Instructions

Issue 2

BR 33070/4

August 1986

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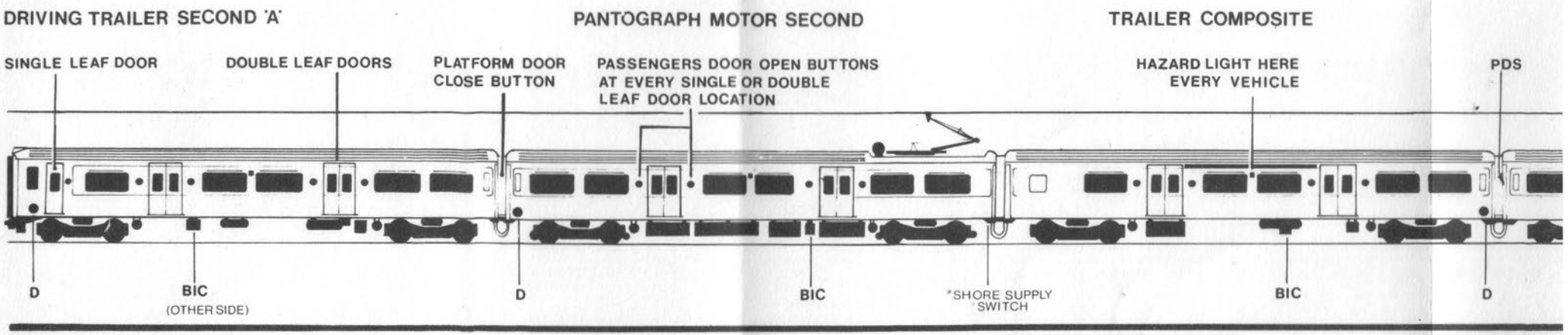
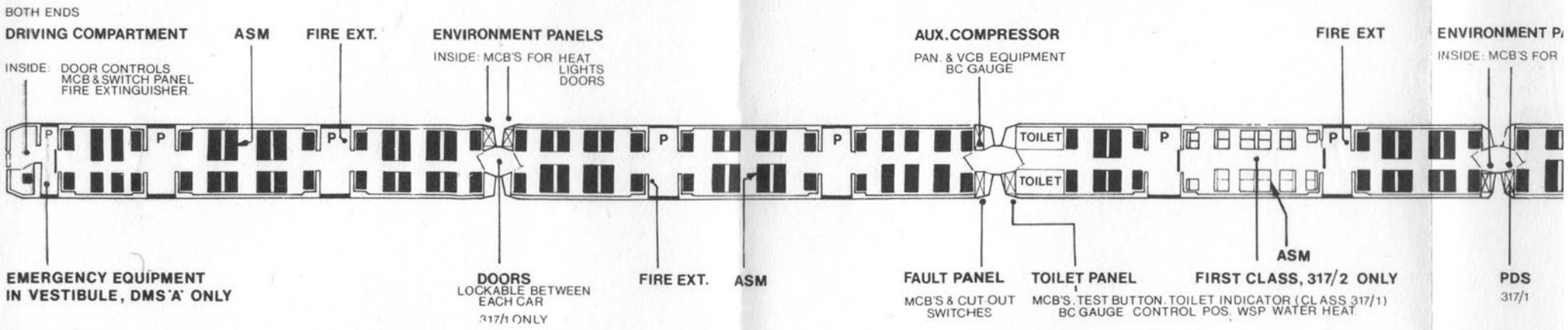
Fig. 1 Class 317 Trains

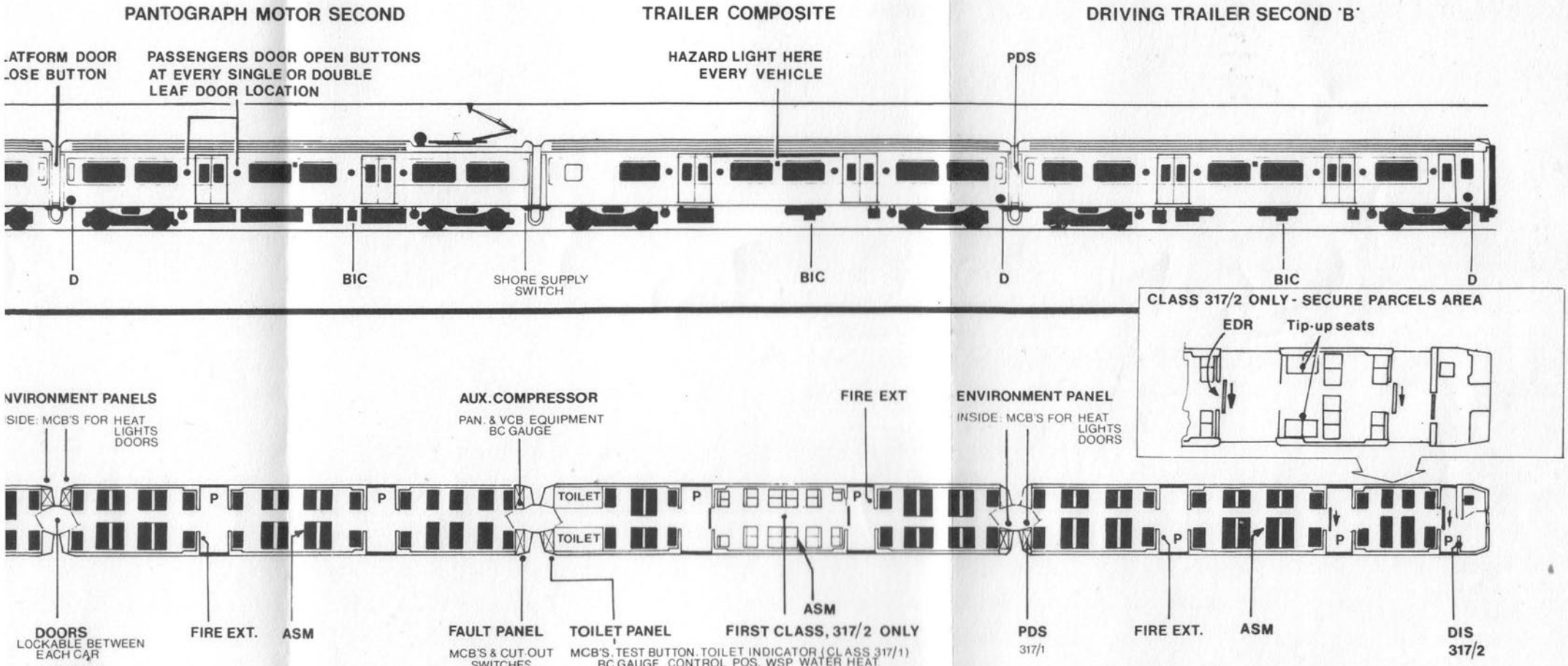
FORMATION AND VITAL EXTERNAL EQUIPMENT



INTERNAL LAYOUT



P	Passenger communication handle
D	Door emergency cock
EDR	Emergency door release
DIS	Door isolating switch
PDS	Parcels door switch
ASM	Air Supply Manifold (grouped air system isolating cocks)
BIC	Brake isolating cock



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1. INTRODUCTION

1.1 Class 317/1 and 317/2 trains are electric multiple units which operate on the 25kV 50 Hz a.c. overhead system.

The units consist of a Driving Trailer Second (DTS), a Pantograph Motor Second (PMS), a Trailer Second (TS) or Trailer Composite (TC) and a further Driving Trailer Second (DTS). The trains may be run as four, eight or twelve coach formations.

The DTS vehicles each have a driving compartment and associated vestibule, with air system components and electrical equipment mounted on the underframe. For identification purposes they are referred to as DTS(A) and DTS(B).

The PMS and TC/TS vehicles also have their electrical equipment and air system components underframe-mounted, whilst in addition the PMS vehicle has all four axles motored and carries the pantograph, vacuum circuit breaker, main transformer, auxiliary transformer etc. The basic formation cannot be varied and gangway connections are provided both within the unit and at the extreme ends for normal passenger access throughout the train and between units in multiple.

The basic layout of each vehicle, the disposition of equipment, driving compartment layout and the front end arrangements are illustrated in figs. 1 to 7, pages 2 to 7.

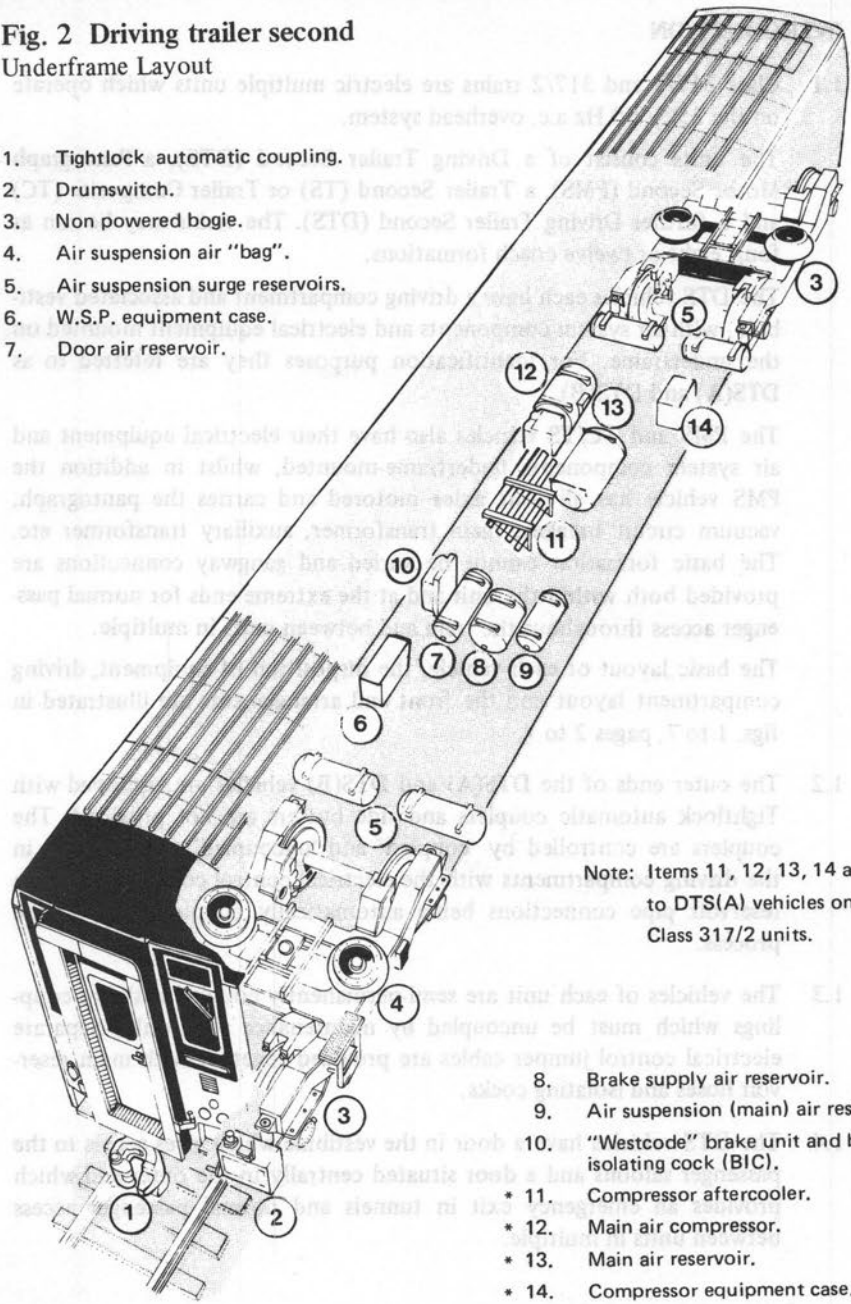
1.2 The outer ends of the DTS(A) and DTS(B) vehicles are equipped with Tightlock automatic couplers and side buffers are not provided. The couplers are controlled by 'coupled' and 'uncoupled' push buttons in the driving compartments with the electrical control contacts and main reservoir pipe connections being automatically coupled in the same process.

1.3 The vehicles of each unit are semi-permanently coupled with bar couplings which must be uncoupled by maintenance staff only. Separate electrical control jumper cables are provided together with main reservoir hoses and isolating cocks.

1.4 The DTS vehicles have a door in the vestibule which gives access to the passenger saloons and a door situated centrally in the outer end which provides an emergency exit in tunnels and normal passenger access between units in multiple.

Fig. 2 Driving trailer second

Underframe Layout



1. Tightlock automatic coupling.
2. Drumswitch.
3. Non powered bogie.
4. Air suspension air "bag".
5. Air suspension surge reservoirs.
6. W.S.P. equipment case.
7. Door air reservoir.

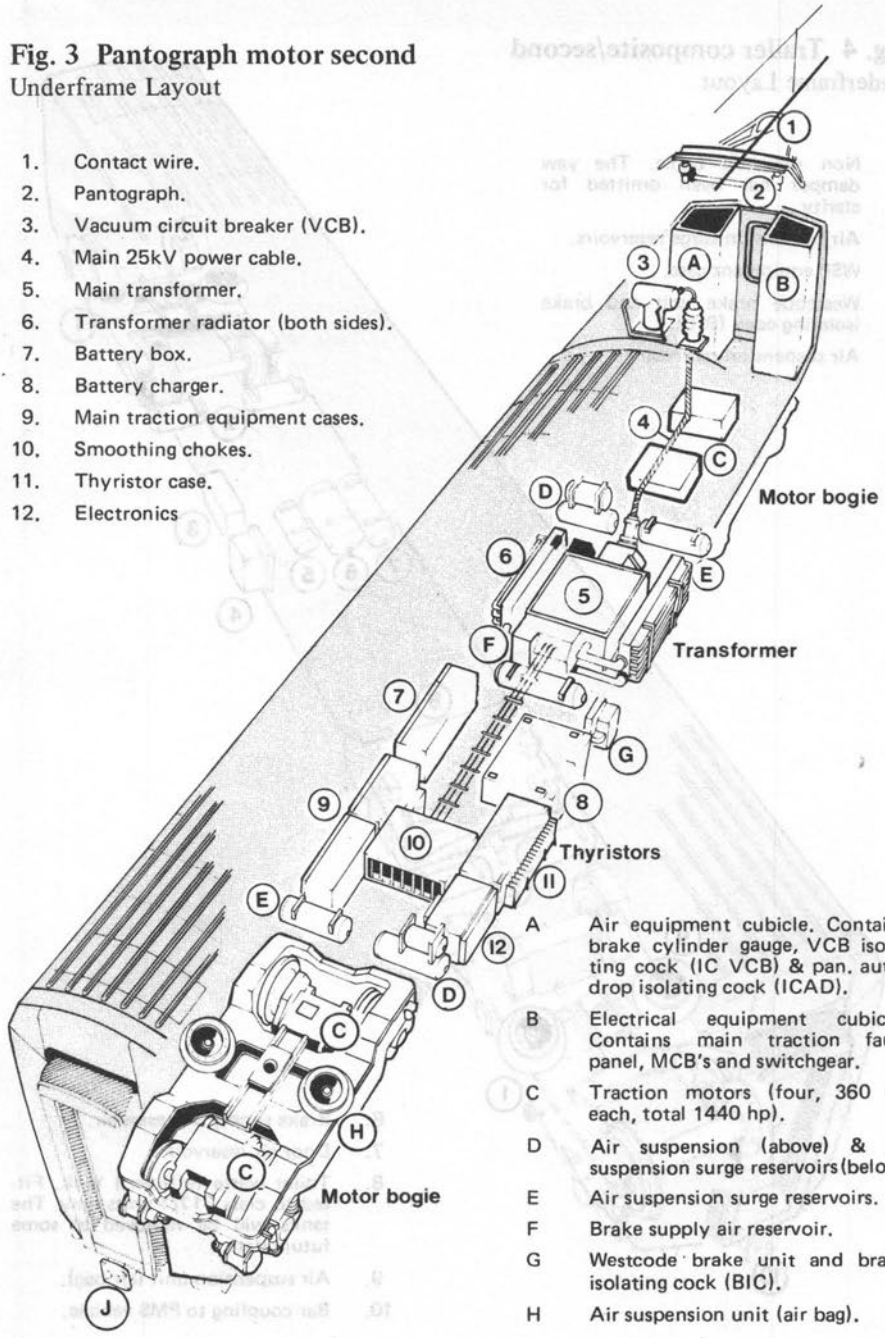
Note: Items 11, 12, 13, 14 apply to DTS(A) vehicles only of Class 317/2 units.

8. Brake supply air reservoir.
9. Air suspension (main) air reservoir.
10. "Westcode" brake unit and brake isolating cock (BIC).
* 11. Compressor aftercooler.
* 12. Main air compressor.
* 13. Main air reservoir.
* 14. Compressor equipment case.

Fig. 3 Pantograph motor second

Underframe Layout

1. Contact wire.
2. Pantograph.
3. Vacuum circuit breaker (VCB).
4. Main 25kV power cable.
5. Main transformer.
6. Transformer radiator (both sides).
7. Battery box.
8. Battery charger.
9. Main traction equipment cases.
10. Smoothing chokes.
11. Thyristor case.
12. Electronics



A Air equipment cubicle. Contains brake cylinder gauge, VCB isolating cock (IC VCB) & pan. auto. drop isolating cock (ICAD).

B Electrical equipment cubicle. Contains main traction fault panel, MCB's and switchgear.

C Traction motors (four, 360 hp each, total 1440 hp).

D Air suspension (above) & air suspension surge reservoirs (below).

E Air suspension surge reservoirs.

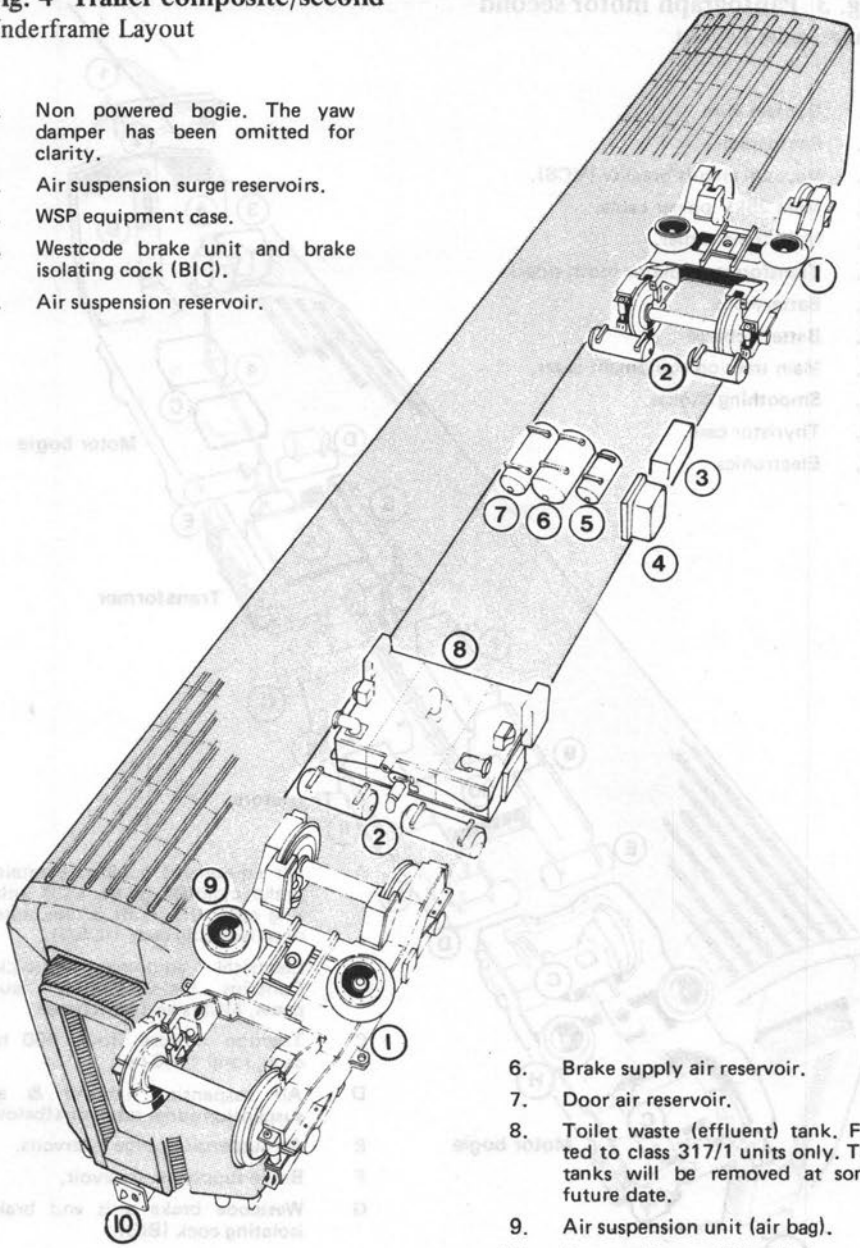
F Brake supply air reservoir.

G Westcode brake unit and brake isolating cock (BIC).

H Air suspension unit (air bag).

Fig. 4 Trailer composite/second

Underframe Layout



1. Non powered bogie. The yaw damper has been omitted for clarity.
2. Air suspension surge reservoirs.
3. WSP equipment case.
4. Westcode brake unit and brake isolating cock (BIC).
5. Air suspension reservoir.
6. Brake supply air reservoir.
7. Door air reservoir.
8. Toilet waste (effluent) tank. Fitted to class 317/1 units only. The tanks will be removed at some future date.
9. Air suspension unit (air bag).
10. Bar coupling to PMS vehicle.

Fig. 5 Class 317/1
Front End

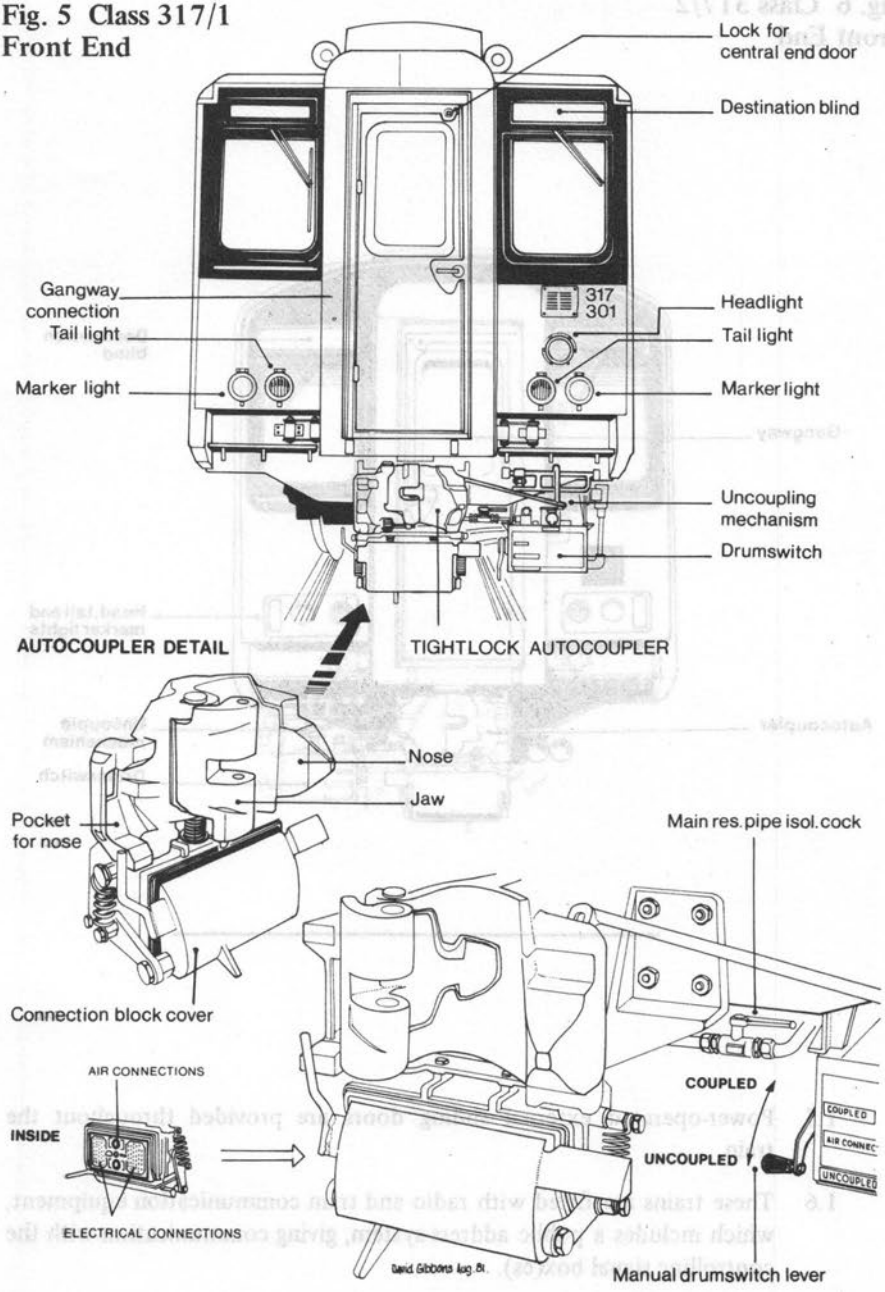
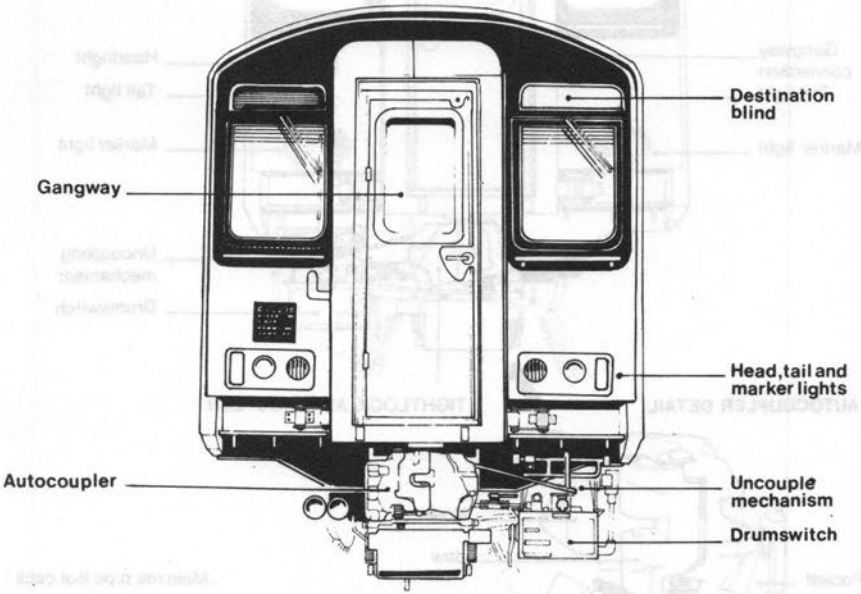


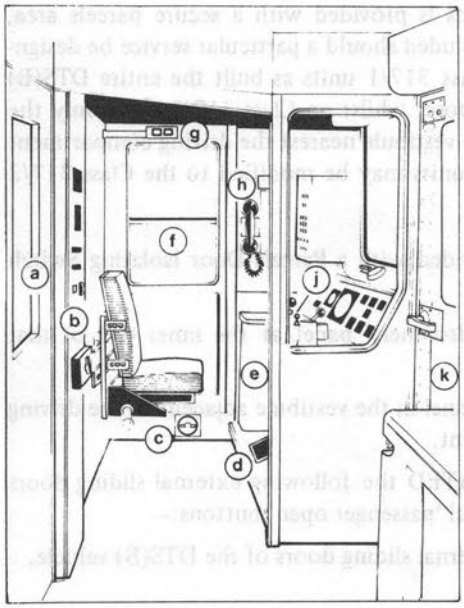
Fig. 6 Class 317/2
Front End



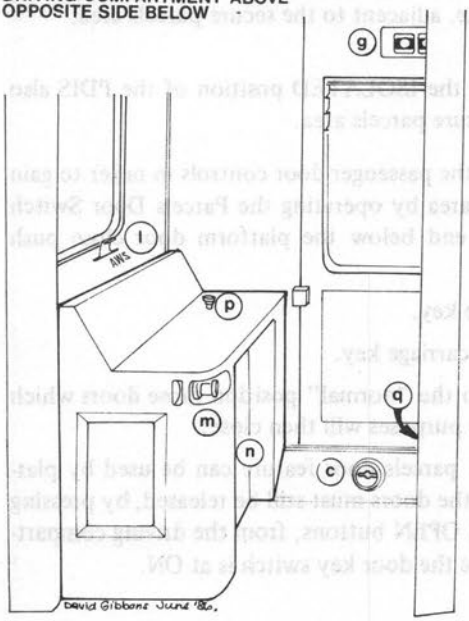
1.5 Power-operated external sliding doors are provided throughout the train.

1.6 These trains are fitted with radio and train communication equipment, which includes a public address system, giving communication with the controlling signal box(es).

Fig. 7 Driving Compartment and Driving Compartment Area-



DRIVING COMPARTMENT ABOVE
OPPOSITE SIDE BELOW



Key to Illustration

Note: for details of Drivers controls, see Driving Instructions.

a	Door to driving compartment.
b	Door key switch, door test, lighting and auxiliaries (for heating) push buttons.
c	Door emergency cocks (for single leaf doors only).
d	DSD pedal.
e	Horn and screenwiper isolating cocks (under desk).
f	Drop light.
g	Door close buttons and door interlock (blue) lights.
h	Telephone type handset for train radio and P.A.
j	Drivers desk.
k	Gangway door.
l	AWS isolating switch.
m	Gangway door bolt.
n	Parking brake air supply isolating cock (see note).
p	Screenwiper control.
q	Door bar (behind draught screen, next to seat).

Note: If the parking brake air supply isolating cock is turned to the "isolate" position, the parking brake will be APPLIED.

2. SECURE PARCELS AREA

The DTS(B) vehicle of these trains is provided with a secure parcels area, from which passengers may be excluded should a particular service be designated to carry such traffic. On Class 317/1 units as built the entire DTS(B) vehicle may be used for this purpose, whilst on Class 317/2 units only the seating bay and passenger entrance vestibule nearest the driving compartment is so dedicated. The Class 317/1 units may be modified to the Class 317/2 arrangement in due course.

2.1 The DTS 'B' vehicle is provided with a Parcels Door Isolating Switch (PDIS) located thus:–

Class 317/1 – in the environment panel at the inner end of that vehicle.

Class 317/2 – behind a panel in the vestibule adjacent to the driving compartment.

When the PDIS is at ISOLATED the following external sliding doors will not respond to the normal 'passenger open' buttons:–

Class 317/1 (as built) – All the external sliding doors of the DTS(B) vehicle.

Class 317/1 (modified)) Class 317/2) – The sets of sliding doors nearest to the driving compartment i.e. adjacent to the secure parcels area.

In addition, on Class 317/2, the ISOLATED position of the PDIS also isolates the heating in the secure parcels area.

2.2 Platform staff may activate the passenger door controls in order to gain access to the secure parcels area by operating the Parcels Door Switch (PDS) on the inner coach end below the platform door close push button thus:–

Class 317/1 – By a Yale-type key.

Class 317/2 – By a standard carriage key.

When the PDS is returned to the "normal" position those doors which have been opened for parcels purposes will then close.

NOTES 1. Before the parcels door feature can be used by platform staff the doors must still be released, by pressing the DOOR OPEN buttons, from the driving compartment where the door key switch is at ON.

2. Even though the doors of the DTS(B) vehicle which have been opened for parcels purposes will close once the PDS is returned to the "normal" position, the doors must still be secured by pressing the DOOR CLOSE button in the driving compartment where the door key switch is at ON.

3. The platform door close button on the vehicle end is inoperative, so far as the secure parcels area is concerned, when the PDS has been operated.

4. When the PDIS is at ISOLATED the appropriate doors of the DTS(B) vehicle will not respond to the DOOR CLOSE button in the driving compartment. This is to allow the platform staff to complete their work, either inside the vehicle or loading from the platform, before they close the doors by returning the PDS to "normal".

3. DISPLAY OF HEADLIGHTS, MARKER LIGHTS ETC.

The trains are equipped with head lights and marker lights on each end. The marker lights and one headlight at the leading end must always be illuminated when the train is in service, together with the destination indicator.

4. DRIVING POSITION

Trains MUST BE DRIVEN FROM THE LEADING DRIVING COMPARTMENT on all lines and sidings except during shunting operations. In such circumstances the train may be driven from other than the leading driving compartment in accordance with the General Appendix instructions 'Light Locomotives, Push-Pull and Multiple Unit Trains – Driving from the Leading Cab'.

5. PROPELLING

5.1 When propelling, other than when assisting a failed train, the movement must be made cautiously and at such a reduced speed as will enable it to be stopped within the distance which the person controlling the movement can see to be clear.

5.2 A competent person must ride in the leading driving compartment to fulfil the requirements of Section 4 above.

6. BRAKE REGULATIONS

6.1 The brakes of these trains are of the 'Westcode' type and are not compatible with any other type of automatic braking system – see fig. 8 page 11.

The electrical supply to the operative brake controller is taken from the rear of the train and passes through the Brake Continuity Train Wire (wire 13). This wire must be energised before the brakes can be released and if it becomes de-energised for any reason, the brakes are fully applied. This feature provides the continuity circuit which replaces the continuous brake pipe. The continuity of the brake continuity train wire is broken, and the brakes are fully applied, in the following circumstances:–

6.1.1 When the brake controller is moved to EMERGENCY in any driving compartment.

6.1.2 When any Passenger Emergency Chain is pulled. The Passenger Emergency Switch (PES), which is attached to the chain, must be reset before the brakes can be released.

6.1.3 When the main reservoir pressure falls below 4.6 bar. This will open a main reservoir governor on each coach and these will not close, to enable the brakes to be released, until the pressure has been restored to 5.7 bar.

6.1.4 When the train passes over the AWS magnet of a signal which is not giving a 'clear' aspect, or any other situation where an AWS magnet is provided, and the resulting warning is not cancelled.

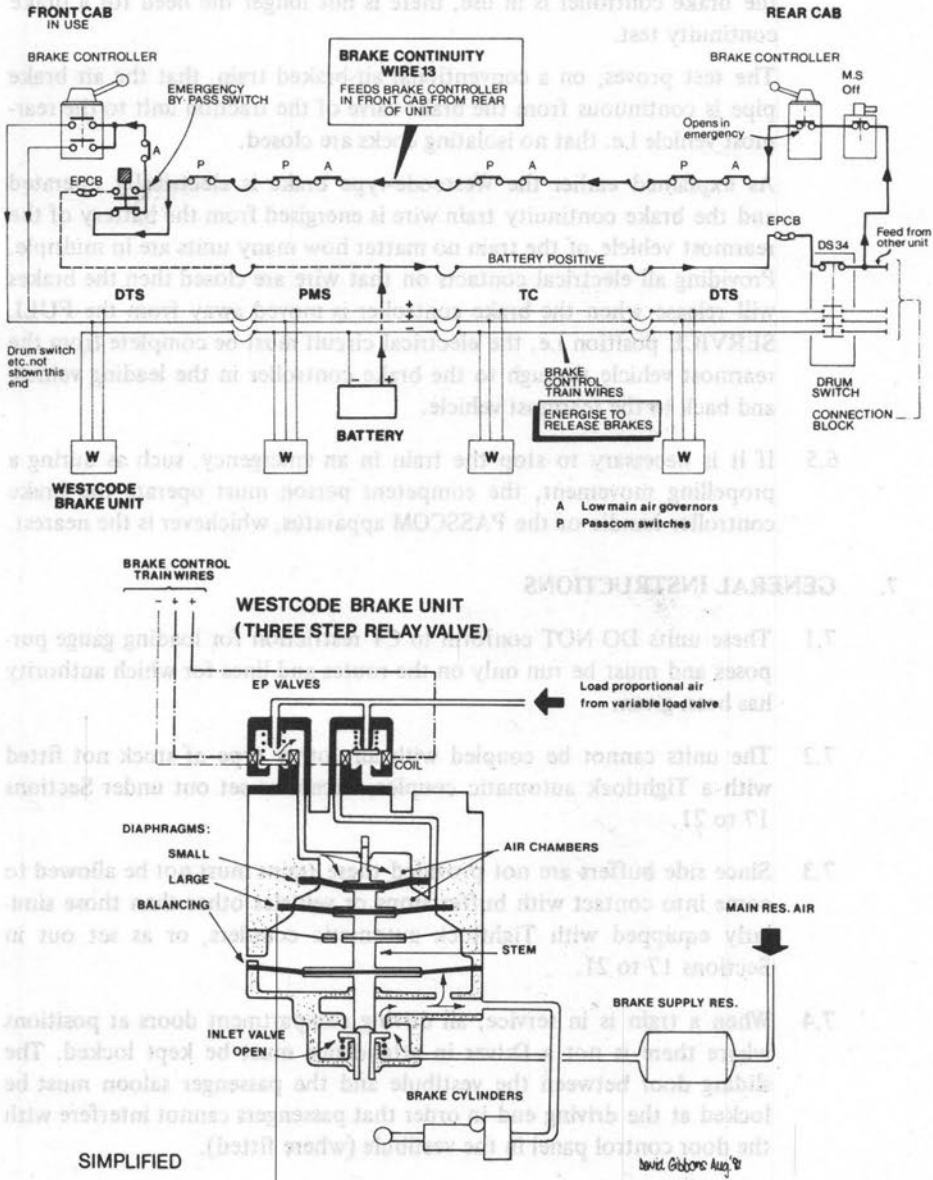
6.1.5 If the DSD foot pedal is inadvertently released with the master switch at either FOR of REV.

6.1.6 If the master switch is inadvertently moved to NEUTRAL when the train is exceeding approximately 4 m.p.h.

6.2 Before leaving a train unattended in traffic, the Driver must move the brake controller to EMERGENCY and remove his master key.

6.3 All pressure gauges are calibrated in BAR units.

Fig. 8 Westcode brake principles



6.4 Since the integrity of the brake continuity train wire has been proved during the Driver's preparation of the train, or indeed at any time when the brake controller is in use, there is not longer the need for a brake continuity test.

The test proves, on a conventional air-braked train, that the air brake pipe is continuous from the brake valve of the traction unit to the rearmost vehicle i.e. that no isolating cocks are closed.

As explained earlier the Westcode-type brake is electrically operated and the brake continuity train wire is energised from the battery of the rearmost vehicle of the train no matter how many units are in multiple. Providing all electrical contacts on that wire are closed then the brakes will release when the brake controller is moved away from the FULL SERVICE position i.e. the electrical circuit must be complete from the rearmost vehicle through to the brake controller in the leading vehicle and back to the rearmost vehicle.

6.5 If it is necessary to stop the train in an emergency, such as during a propelling movement, the competent person must operate the brake controller handle or the PASSCOM apparatus, whichever is the nearest.

7. GENERAL INSTRUCTIONS

7.1 These units DO NOT conform to C1 restriction for loading gauge purposes and must be run only on the routes and lines for which authority has been given.

7.2 The units cannot be coupled with any other type of stock not fitted with a Tightlock automatic coupler, except as set out under Sections 17 to 21.

7.3 Since side buffers are not provided these trains must not be allowed to come into contact with buffer stops or vehicles other than those similarly equipped with Tightlock automatic couplers, or as set out in Sections 17 to 21.

7.4 When a train is in service, all driving compartment doors at positions where there is not a Driver in attendance must be kept locked. The sliding door between the vestibule and the passenger saloon must be locked at the driving end in order that passengers cannot interfere with the door control panel in the vestibule (where fitted).

If it is necessary for any other member of the staff to enter a driving compartment or vestibule area during the course of his duties, that person is responsible for ensuring that the necessary doors are locked on leaving.

7.5 When units are in multiple the end gangway doors adjacent to all intermediate driving compartments must be secured open and the clear full-length plastic screens opened and secured to close off one side of the driving compartment, thus allowing normal passenger access between units – see fig. 9 page 14.

7.6 The end gangway doors at the outer ends of the train must be kept locked, together with the full length plastic screens.

8. LOCATION OF EMERGENCY EQUIPMENT

8.1 In each driving compartment:–

8.1.1 A sealed case containing not less than ten detonators and a red flag.

8.1.2 Two sets of track circuit operating clips.

8.1.3 Two BCF fire extinguishers.

8.2 Water type (gas expelled) fire extinguishers in the passenger saloons.

8.3 An emergency equipment cupboard, with contents as listed in the General Appendix, located in the vestibule behind the driving compartment of the DTS(A) vehicle – see fig. 10 page 16.

8.4 One extending ladder suspended from the ceiling of the vestibule adjacent to all driving compartments.

9. STARTING BELL APPARATUS

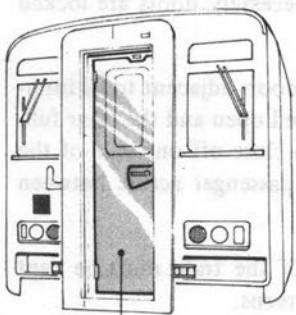
9.1 The starting bell is actuated by the SIGNAL (green) button on each door control panel – where provided – and operated by a competent person.

9.2 The SIGNAL button will be operative:–

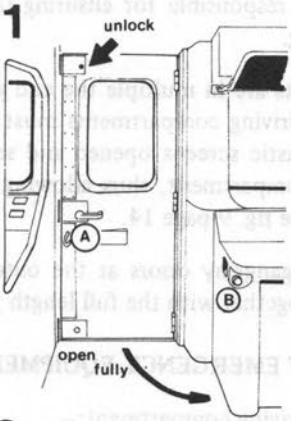
9.2.1 Only at positions where a door key switch is at ON.

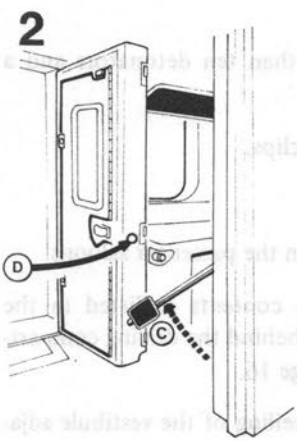
Fig. 9 Gangway doors

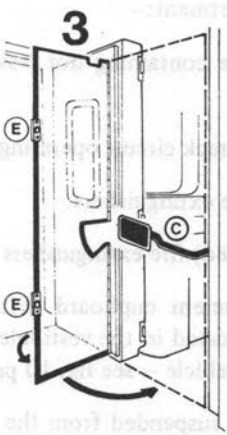
How they work

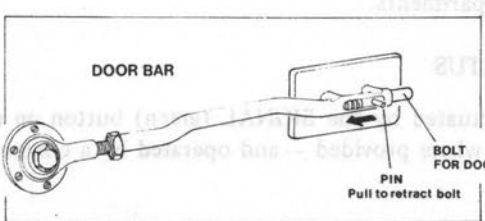


Note plastic screen over gangway door









The drawings will together illustrate how the gangway doors work by showing how the gangway is brought into service.

Drawing 1. Unlock the gangway door with carriage key as shown and open fully. Note that to lock the door in the open position, hook (A) engages into door bolt (B) – withdraw this first.

Drawing 2. Lift door bar (C) from its normal position alongside seat and engage into locating hole (D) on door. See inset for details of door bar.

Drawing 3. Unlock plastic screen at (E) with carriage key and pull away from door. Place screen against door bar (C) – the position is shown dotted – then lock with carriage key.

To restore gangway, reverse the procedure.

9.2.2 When all doors (except that at that position) are closed and the electrical circuit for the SHUT indication and the door indicator are complete.

9.3 The Driver must acknowledge all bell signals by repetition.

9.4 Except when shunting operations are being controlled by hand signals from the ground, or except where otherwise authorised, the Shunter and Driver must communicate, as necessary, by means of the following signals on the starting bell:–

Stop	1 ring
Ready to Start	2 rings
Set back the train	3 rings
Slow down	4 rings
Draw forward	6 rings
Driver or Shunter required to speak on cab/cab communication	3 pause 3 rings

NOTE: In the event of failure of the starting bell then the train communication buzzer may be used, providing the Driver and Shunter come to a clear understanding as to its use.

10. TRAIN COMMUNICATION EQUIPMENT

NOTE: Separate Instructions are issued for the radio communication equipment.

10.1 A telephone-type handset is provided in each driving compartment for communication between the Driver and Shunter and to enable information to be given to the passengers by means of loudspeakers in the saloons i.e. the Public Address (PA) system.

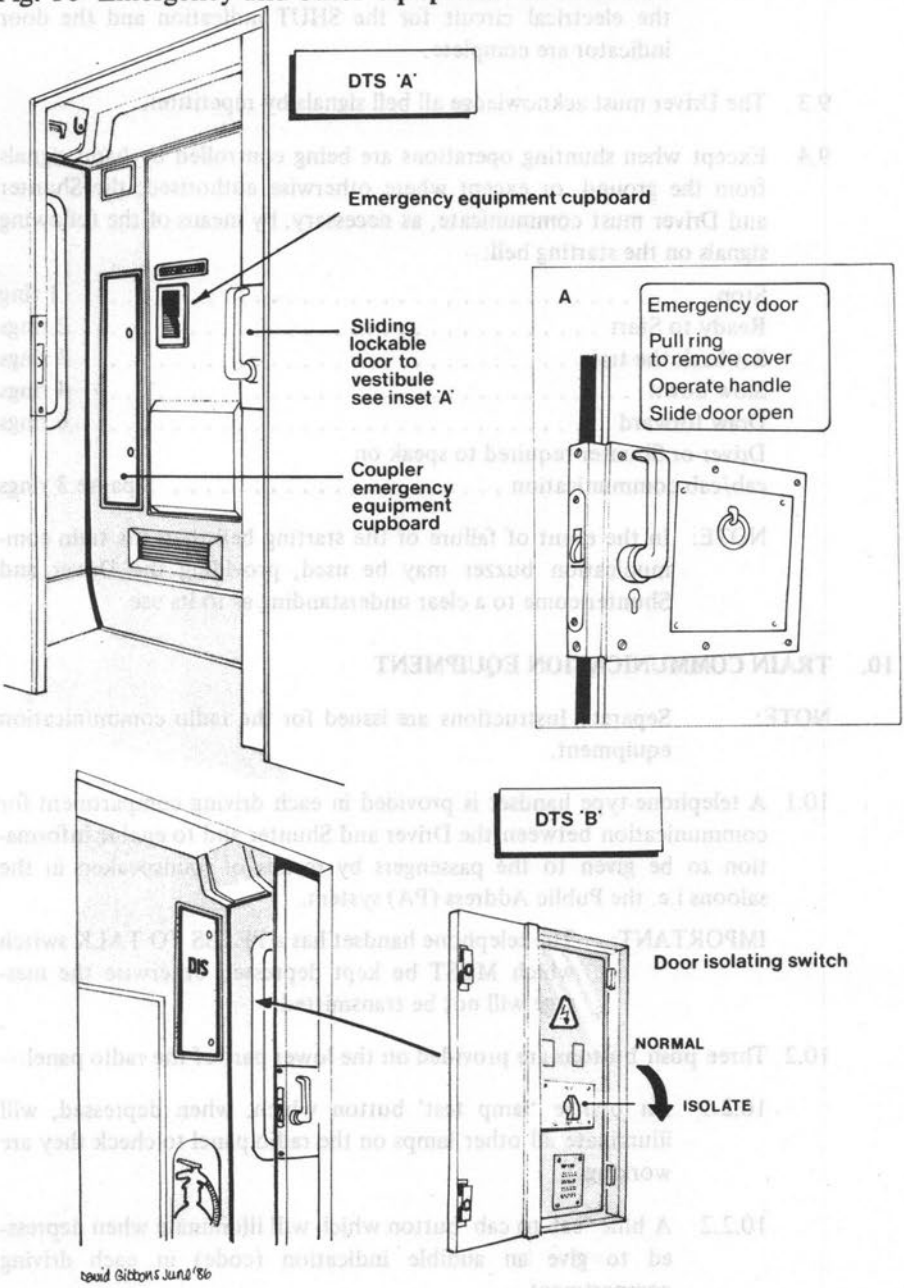
IMPORTANT: The telephone handset has a PRESS TO TALK switch which MUST be kept depressed otherwise the message will not be transmitted.

10.2 Three push buttons are provided on the lower part of the radio panel:–

10.2.1 An orange 'lamp test' button which, when depressed, will illuminate all other lamps on the radio panel to check they are working.

10.2.2 A blue 'cab to cab' button which will illuminate when depressed to give an audible indication (code) in each driving compartment.

Fig. 10 Emergency and other equipment in vestibules



10.2.3 A yellow 'PA' button which remains depressed whilst the system is in use, during which time the button will be illuminated and the 'cab to cab' communication must not be used.

10.3 The telephone must only be used for essential conversations between the Driver and Shunter on subjects affecting the working of the train. It does not relieve Drivers or Shunters in any way from their obligations to carry out all the relevant rules and regulations.

10.4 Under no circumstances must the telephone be used for controlling the movements described in Section 9.

11. HEATING

11.1 With the exception of the driving compartments, a thermostatically-controlled system of electric heating is provided throughout the train, which is designed to maintain the passenger saloons at an approximately constant temeprature at all times when the train is in service.

11.2 Heating in the driving compartments is controlled by four-position switches located on the equipment cupboard at the rear of the driving compartment. A separate foot warmer is also provided and is controlled by a switch on the driving compartment desk.

11.3 In the event of a failure resulting in electric heating not being available e.g. a Miniature Circuit Breaker (MCB) in the environment panel of the vehicle concerned (see fig. 11 page 19) will not reset after not more than three attempts, then arrangements must be made, where practicable, for passengers to be directed to coaches in which the heating is working correctly. The hopper ventilators above the passenger seats must normally be kept closed, but may be opened as necessary to provide additional ventilation.

12. LIGHTING

12.1 Fluorescent lighting is provided in the passenger saloons and is controlled from any driving compartment by LIGHTING SET (on)/TRIP (off) buttons on the switch panel behind the driving seat.

12.2 In the event of failure of the main lighting supply e.g. during loss of traction current, certain fluorescent lights are fed from the batteries.

12.3 Lighting in the vestibules operates with the saloon lighting but can be switched off separately by means of the vestibule light switches, which must normally be in the 'down' position. When the driving compartment door is closed, both the vestibule lights come under the same control as the saloon lighting thus, for the local switches to be operative, the driving compartment door must remain open.

12.4 The incandescent light in the vestibule is controlled by a light switch on the drivers instrument panel.

12.5 If the lighting has failed in a particular vehicle then , if a MCB within the environment panel has tripped, there must be no more than three attempts to reset it.

13. SPRING PARKING BRAKE

13.1 The parking brake is applied by springs contained within the brake equipment which is mounted on each bogie of the DTS coaches only. These springs act through the brake linkage and apply the brake pads to the discs of all wheels of the vehicles concerned.

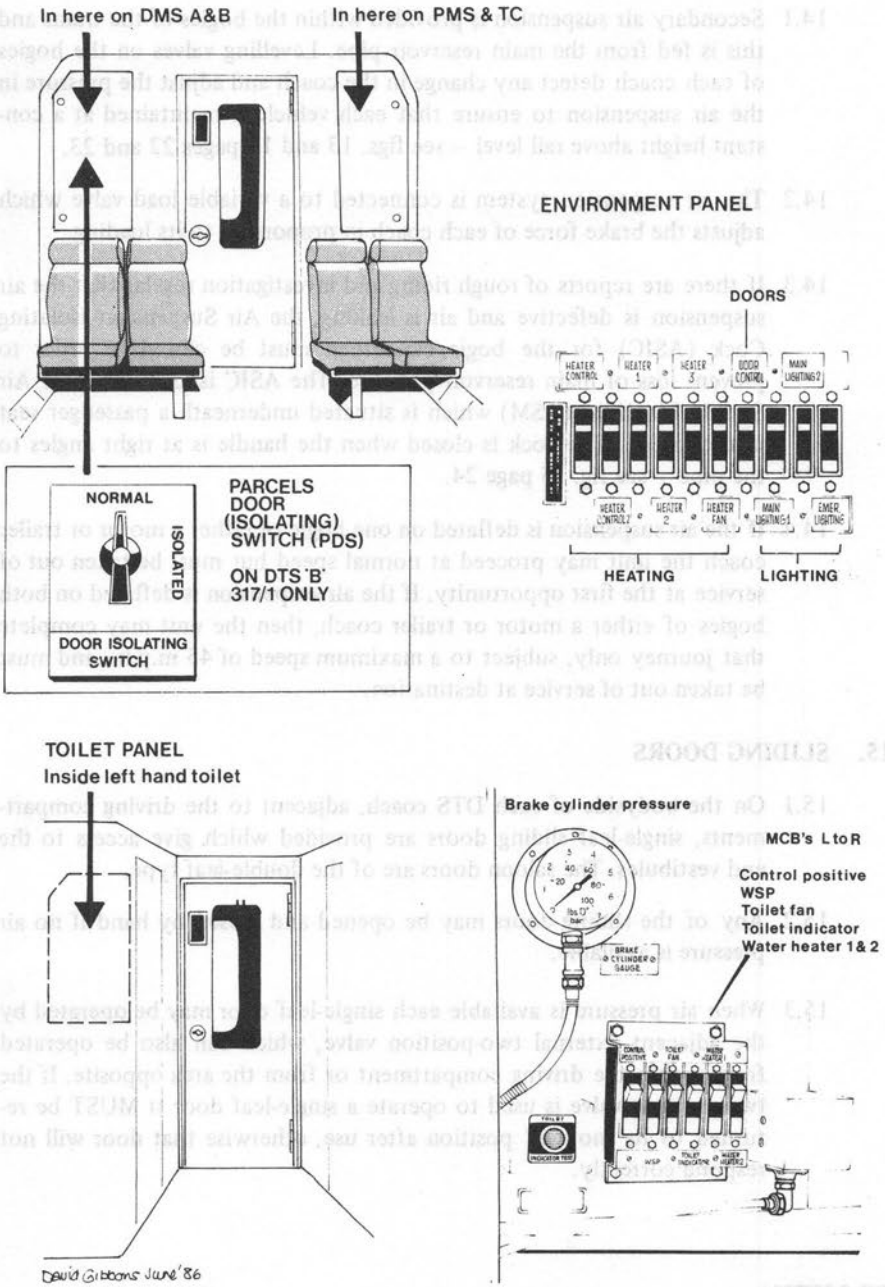
13.2 Release of the parking brake is automatic and is effected by air supplied to pistons which oppose the action of the springs. The parking brake is released when there is a pressure of 3.2 bar or more in the main reservoir system, and is applied when the pressure falls below this figure.

13.3 An isolating cock is provided in each driving compartment which, when closed, cuts off the air supply from the main reservoir system and vents the pressure from the pistons which oppose the springs and thus the parking brake is applied.

13.4 When no main reservoir pressure is available the parking brakes may only be released by charging the system from another traction unit. A Schrader 'plug-in' connection is provided above the drum switch of each DTS vehicle (see fig. 12 page 21) into which the emergency air hose may be fitted. This hose has a standard coupling at one end which may be attached to the main reservoir pipe of the other traction unit and then 'plugged-in' to the Class 317 unit. This will enable the main reservoir system to be charged once the associated isolating cock (where fitted) has been opened. This isolating cock must be closed before the hose is disconnected.

13.5 When no alternative air supply is available maintenance staff must be called to release the parking brakes.

Fig. 11 Environment Panel (ENV)



14. COACH SUSPENSION

14.1 Secondary air suspension is provided within the bogies of the trains and this is fed from the main reservoir pipe. Levelling valves on the bogies of each coach detect any change in the coach and adjust the pressure in the air suspension to ensure that each vehicle is maintained at a constant height above rail level – see figs. 13 and 14 pages 22 and 23.

14.2 The air suspension system is connected to a variable load valve which adjusts the brake force of each coach in proportion to its loading.

14.3 If there are reports of rough riding and investigation revelas that the air suspension is defective and air is leaking, the Air Suspension Isolating Cock (ASIC) for the bogie concerned must be closed in order to prevent loss of main reservoir pressure. The ASIC is located on the Air Supply Manifold (ASM) which is situated underneath a passenger seat in the saloon. The cock is closed when the handle is at right angles to the pipe – see fig. 15 page 24.

14.4 If the air suspension is deflated on one bogie of either a motor or trailer coach the unit may proceed at normal speed but must be taken out of service at the first opportunity. If the air suspension is deflated on both bogies of either a motor or trailer coach, then the unit may complete that journey only, subject to a maximum speed of 45 m.p.h., and must be taken out of service at destination.

15. SLIDING DOORS

15.1 On the bodyside of each DTS coach, adjacent to the driving compartments, single-leaf sliding doors are provided which give access to the end vestibules. The saloon doors are of the double-leaf type.

15.2 Any of the sliding doors may be opened and closed by hand if no air pressure is available.

15.3 When air pressure is available each single-leaf door may be operated by the adjacent external two-position valve, which can also be operated from within the driving compartment or from the area opposite. If the two-position valve is used to operate a single-leaf door it MUST be returned to its 'normal' position after use, otherwise that door will not respond correctly.

Fig. 12 Emergency air hose

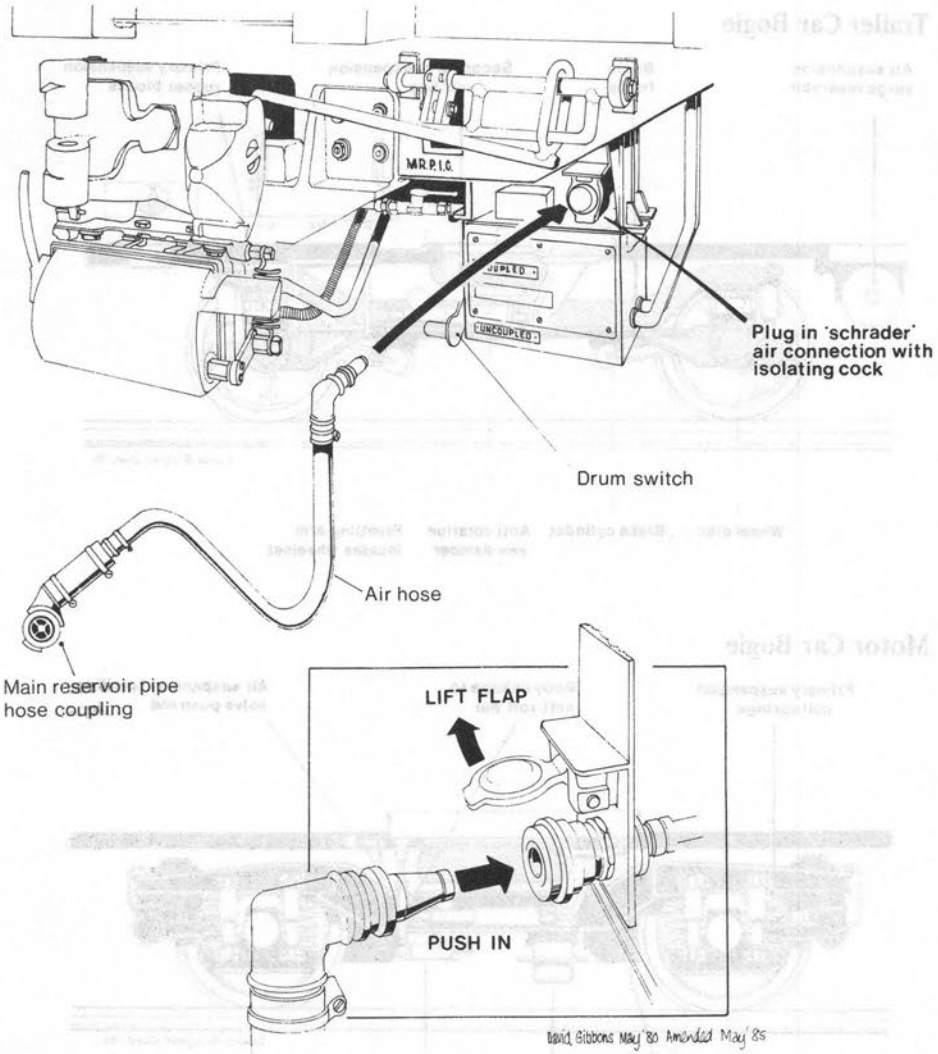
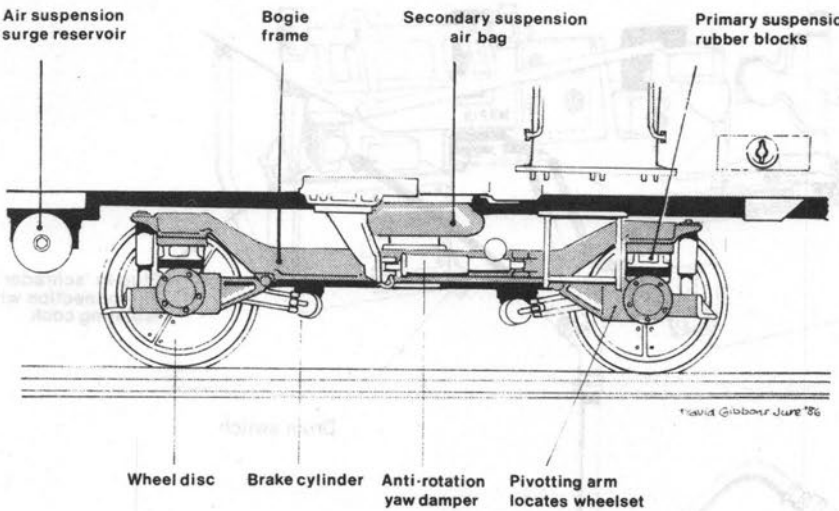


Fig. 13 Bogies

Trailer Car Bogie



Motor Car Bogie

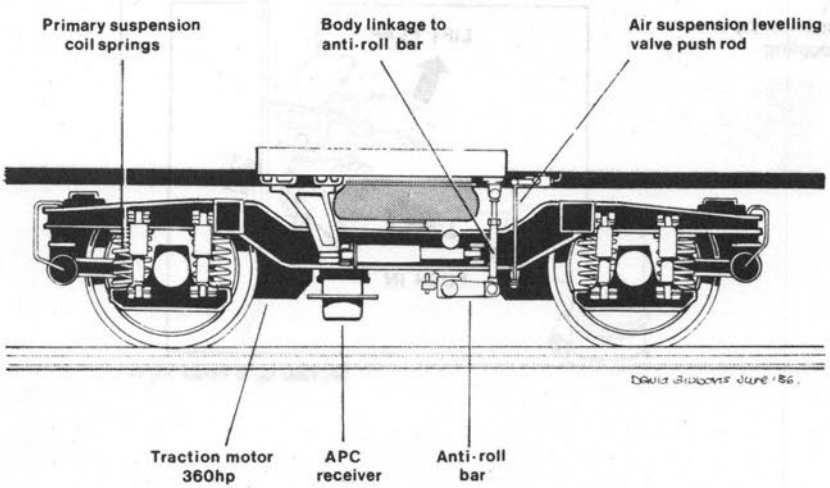
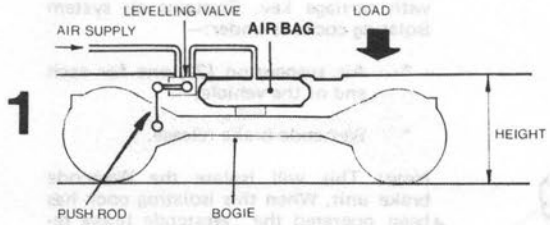
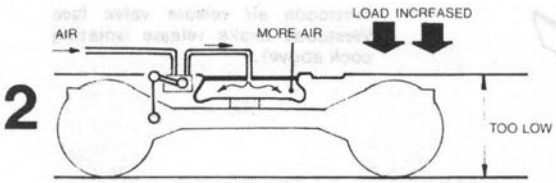


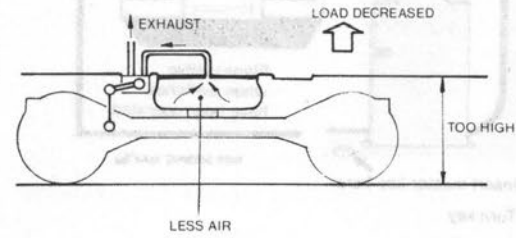
Fig. 14 How air suspension works



The air bag is inflated with air supplied via a levelling valve until the car body is raised to the correct height above rail level. This height is maintained automatically, irrespective of passenger load, as shown below.

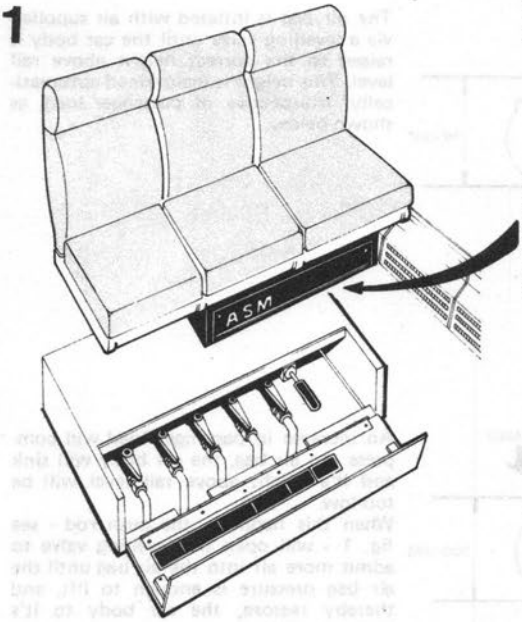


An increase in passenger load will compress the air bag, the car body will sink and it's height above rail level will be too low.
When this happens, the push rod - see fig. 1 - will open the levelling valve to admit more air into the air bag until the air bag pressure is enough to lift, and thereby restore, the car body to it's correct height.
The levelling valve will then close, retaining the increased air pressure in the air bag.



A decreased passenger load will have the opposite effect. The reduced load on the air bag will cause it to expand, raising the car body too high. This will make the push rod react on the levelling valve as shown, opening an exhaust port to vent excess air from the air bag. As the air bag pressure falls, the car body will sink until it is at the correct height, when the levelling valve will close. In this way, the air suspension is self levelling.

Fig. 15 Air Supply Manifold (ASM)

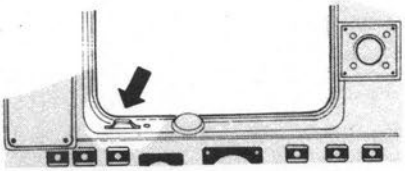


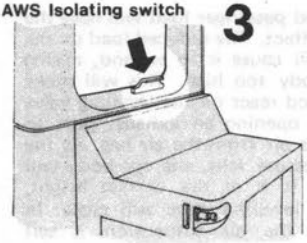
Located under double or triple seat as shown behind pull-down door unlocked with carriage key. Contains air system isolating cocks as under:—

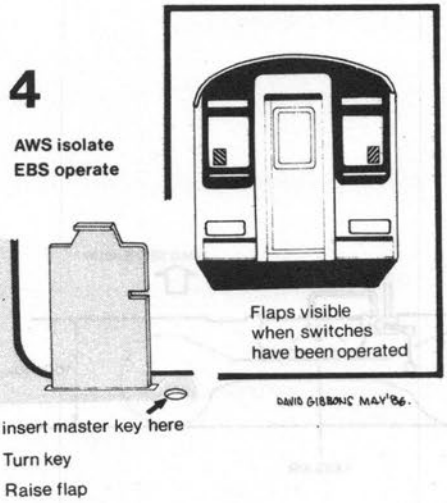
* Air suspension (2), one for each end of the vehicle.
* Westcode brake release.

Note: This will isolate the Westcode brake unit. When this isolating cock has been operated the "Westcode brake release" valve must be held down to release the air from the brake cylinders on the vehicle concerned.

* Doors.
* Heating and ventilation (where fitted).
* Westcode air release valve (see Westcode brake release isolating cock above).







15.4 Provided sufficient main reservoir air pressure is available and the door key switch in the driving compartment has been unlocked and turned to the ON position, then the DOOR OPEN/RELEASE and DOOR CLOSE buttons on the driving compartment desk and the DOOR CLOSE buttons above the side windows are operative – see fig. 16 and 17 pages 26 and 27.

15.4.1 When the two DOOR OPEN/RELEASE buttons for the appropriate side of the train are pressed simultaneously the passenger doors are released so that they may then be opened as required.

15.4.2 When a DOOR CLOSE button is pressed all passenger doors which are open will close, and all doors will therefore be secured to prevent them from being opened.

15.4.3 When all doors, except the local door if in use, are closed and secured the DOOR INTERLOCK light (blue) alongside the DOOR CLOSE button above the side windows will be illuminated.

15.4.4 When the DOOR INTERLOCK light is illuminated the SIGNAL button on the door control control panel (where these are fitted) will be operative. The SIGNAL button on the driving desk is operative at all times.

15.5 The doors may also be operated from the door control panels in the vestibule adjacent to the driving compartment (where these are fitted), providing the door key switch has been operated as described in Clause 15.4. These points have OPEN/RELEASE, CLOSE and SIGNAL buttons and a DOOR INTERLOCK light which act in the same way as those in the driving compartment area. Additionally on these panels there is a local door switch which is moved 'up' to open the adjacent single-leaf door and 'down' to close it. If the door does not respond correctly then check the two-position valve (Clause 15.3).

15.6 In the driving compartment a DOOR TEST button is provided (beneath a hinged cover to prevent inadvertent use). This may be used to actually open the doors once a 'release' has been given by pressing the DOOR OPEN/RELEASE buttons for the appropriate side of the train.

Fig. 16 Door controls

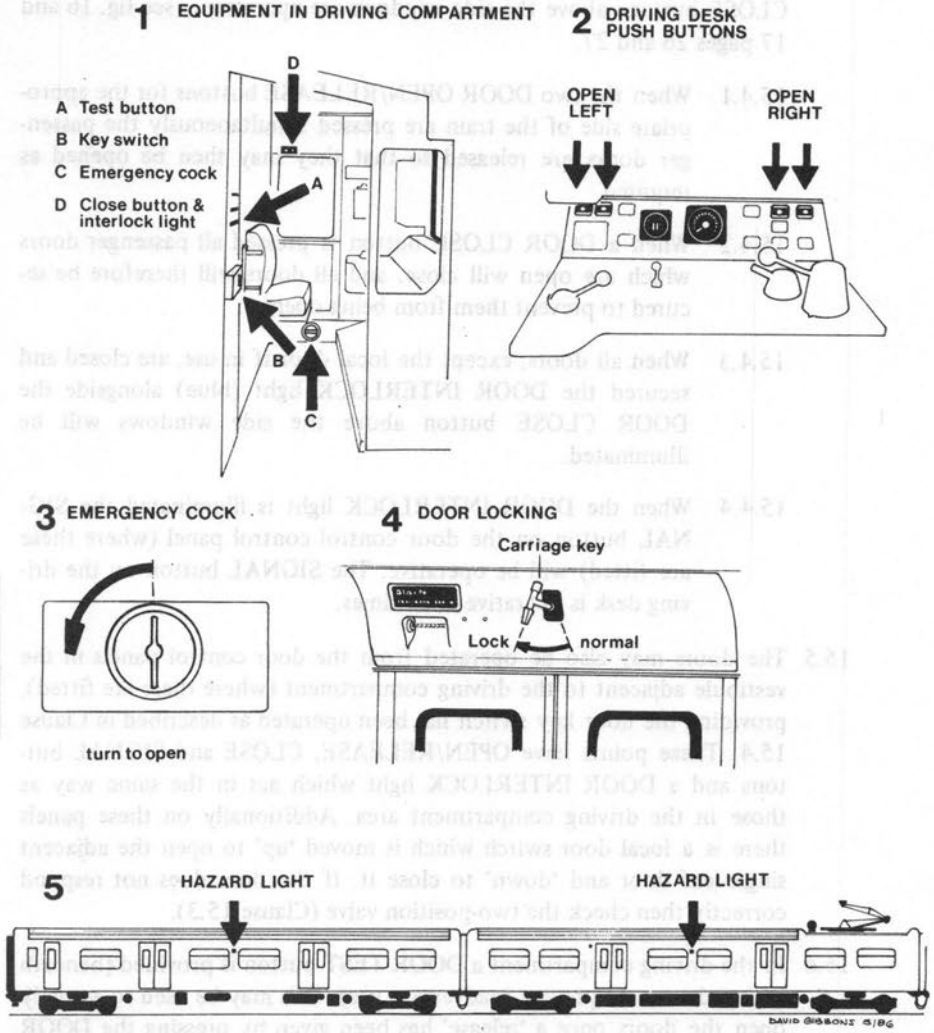
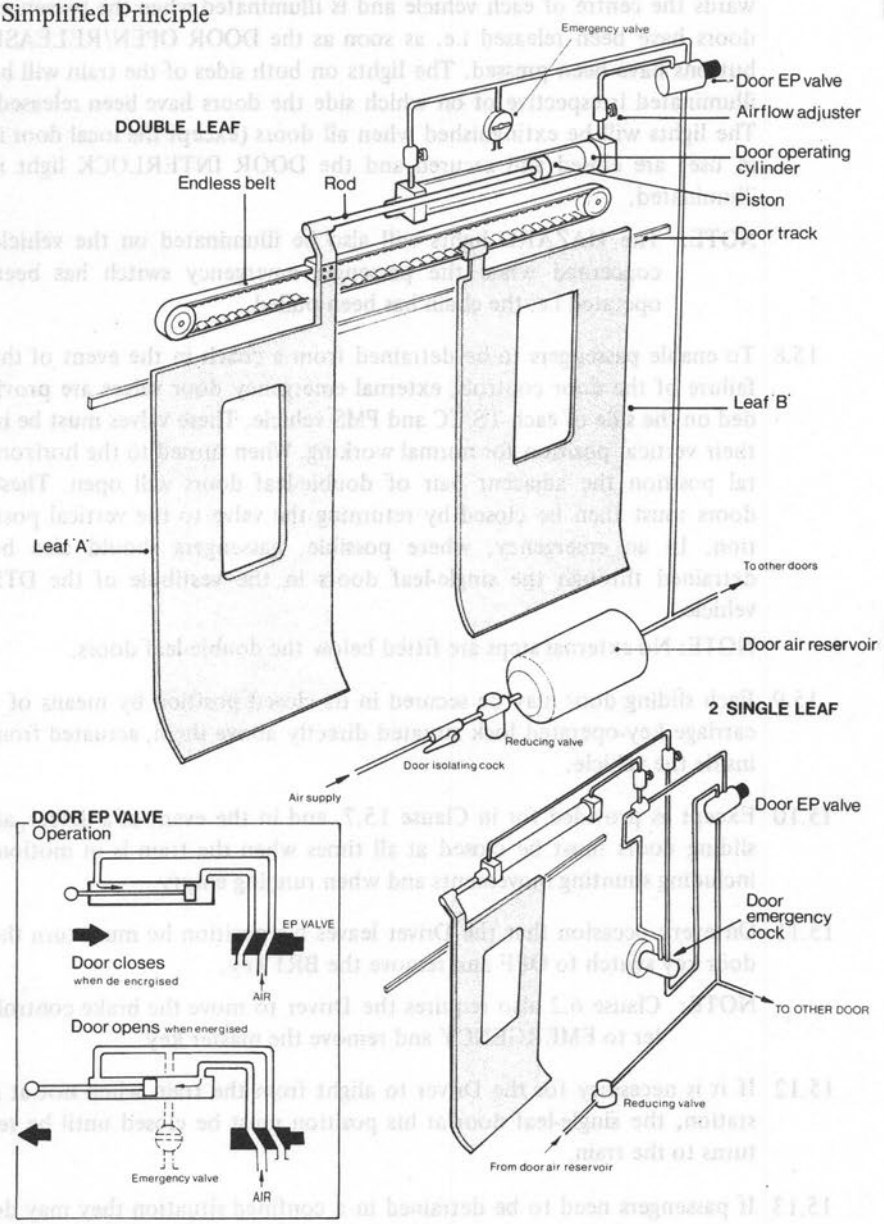


Fig. 17 Air-operated sliding doors

Simplified Principle



15.7 A HAZARD warning light (orange) is located above the windows towards the centre of each vehicle and is illuminated when the passenger doors have been released i.e. as soon as the DOOR OPEN/RELEASE buttons have been pressed. The lights on both sides of the train will be illuminated irrespective of on which side the doors have been released. The lights will be extinguished when all doors (except the local door if in use) are closed and secured and the DOOR INTERLOCK light is illuminated.

NOTE: The HAZARD lights will also be illuminated on the vehicle concerned when the passenger emergency switch has been operated i.e. the chain has been pulled.

15.8 To enable passengers to be detrained from a coach in the event of the failure of the door controls, external emergency door valves are provided on the side of each TS/TC and PMS vehicle. These valves must be in their vertical position for normal working. When turned to the horizontal position the adjacent pair of double-leaf doors will open. These doors must then be closed by returning the valve to the vertical position. In an emergency, where possible, passengers should also be detrained through the single-leaf doors in the vestibule of the DTS vehicle.

NOTE: No external steps are fitted below the double-leaf doors.

15.9 Each sliding door may be secured in its closed position by means of a carriage key-operated lock situated directly above them, actuated from inside the vehicle.

15.10 Except as provided for in Clause 15.7, and in the event of a defect, all sliding doors must be closed at all times when the train is in motion, including shunting movements and when running empty.

15.11 On every occasion that the Driver leaves his position he must turn the door key switch to OFF and remove the BR1 key.

NOTE: Clause 6.2 also requires the Driver to move the brake controller to EMERGENCY and remove the master key.

15.12 If it is necessary for the Driver to alight from the train when not at a station, the single-leaf door at his position must be closed until he returns to the train.

15.13 If passengers need to be detrained in a confined situation they may do so through the end doors of the front and rear DTS vehicles.

15.14 When the vestibule is being used by a member of the train crew, the sliding door between the passenger saloon and vestibule must be locked. The lock is operated from either the saloon or vestibule side. To enable passengers to exit through this door in an emergency a glass panel is provided on the saloon side which may be broken to gain access to a lever which releases the lock.

When the vestibule is used by passengers the sliding door must be left unlocked.

15.15 A hinged door is provided to prevent access to the driving compartment when the vestibule is available for passenger use. This door must be locked unless the vestibule is being used by a member of the train crew.

15.16 On Class 317/1 units hinged doors fitted with locks are provided at the gangway ends of each coach to enable a coach to be 'isolated' from the rest of the train in the event of a defect e.g. a broken window. To enable passengers to exit through these doors in an emergency a scored glass panel is provided on each side which may be broken to gain access to a lever which releases the lock.

15.17 When the train is berthed the Driver must ensure, unless otherwise instructed, that all sliding doors are closed and that the end doors are locked.

15.18 If traction power cannot be obtained after the DOOR CLOSE button has been pressed i.e. the DOOR INTERLOCK light has not illuminated then the appropriate DOOR OPEN/RELEASE buttons should be pressed followed by the DOOR TEST button. This will actually open the doors. The CLOSE button should then be pressed. If the door interlock light still does not illuminate and traction power cannot be obtained then a search must be made along the train to ascertain if any door is open or obstructed.

NOTE: The requirements of Clause 15.11 must be observed.

15.19 A unit with a defective door which cannot be properly closed must be taken out of service. Should it be necessary for the train to run with a door not properly closed then all passengers must be moved from the defective vehicle and, on Class 317/1 vehicles, the gangway end doors must be locked to 'isolate' that vehicle. Any remaining operative sliding doors must be locked in the closed position.

NOTE: If the defective coach is the DTS(B) vehicle then the Parcels Door Isolating Switch (PDIS) may be moved to the ISOLATED position to secure the vehicle, or part of the vehicle, and prevent it being used by passengers i.e. the sliding doors will not respond to the PASSENGER OPEN buttons.

15.20 When there is a door which cannot be properly closed it will be necessary for the Driver to operate the TRACTION INTERLOCK SWITCH (T.I.S.) in the driving compartment in order to regain traction power.

NOTE: There may be local instructions in regard to the use of the T.I.S.

15.21 If all the doors of a train cannot be properly closed, either by the CLOSE buttons in the driving compartment or on the door control panels, it must be assumed that there is an electrical fault and the Fault Finding Procedures detailed in BR.33056/92 must be carried out. If the defect cannot be rectified then the train must be taken out of service. The Door System Isolating Cocks (DSIC) located on the Air Supply Manifold (ASM) beneath the seats must be closed and the doors secured as detailed in Clause 15.9.

15.22 The doors, both single and double-leaf, are identified by letters and these must be used whenever it is necessary to report a defective door, or any incident involving the doors, together with the vehicle number.

16. FAILURE OF DRIVING OR BRAKING CONTROLS

16.1 A Class 317 unit must not leave a Maintenance Depot or Outstabling Point to take up passenger working with the brake ineffective on any vehicle or if the driving and/or brake equipment in any driving compartment is defective.

16.2 If it is absolutely essential for a train in service with the brake inoperative on one vehicle only to leave the station from which it is booked to commence its journey then this may be done. Arrangements must be made for the fault to be corrected, or the unit to be detached, at the earliest possible opportunity.

16.3 If the driving equipment in the leading driving compartment becomes defective during the journey, but full brake continuity can still be obtained from the leading driving compartment, then providing a competent person is available the Driver may drive and brake the train from the most convenient driving compartment and, as far as practicable, observe all fixed and other signals. The competent person must ride in the leading driving compartment and fulfil the requirements of Section 4.

The train must proceed at reduced speed and the Driver must be prepared to act promptly upon any signal he may receive from the competent person.

Passengers must be detrained at the first convenient station and the train cleared from running lines as soon as possible.

16.4 If the train is composed of a single Class 317 unit and the driving equipment in the leading driving compartment becomes defective, and the train cannot be driven from the rear driving compartment in accordance with Clause 16.3 above or a competent person is not available, then the train must be regarded as a failure and assistance must be provided.

16.5 If, during the course of a journey, it is necessary to isolate the brake on one vehicle then providing electrical continuity can be maintained, the train may complete that journey but must be taken out of service at destination.

16.6 At all times when the train is running with the brake inoperative on any vehicle the Driver must regulate the speed having regard to the brake power available.

NOTE: SINCE THE VEHICLES WITHIN A UNIT HAVE BAR COUPLERS THEN THE COMPLETE 4 CAR UNIT IS TO BE REGARDED AS THE 'LAST VEHICLE' FOR THE PURPOSE OF ITEM 11.4 OF THE REGULATIONS FOR WORKING OF THE AUTOMATIC AIR BRAKE ETC.

16.7 If a defect arises on a journey, which results in electrical continuity not being available between units, then the intermediate drum switches must be moved to the UNCOUPLED position.

16.7.1 If the Westcode brake is operative **on the leading unit only** then the brakes must be released on the rear unit and a competent person must be provided to ride in the leading driving compartment of that unit prepared to apply the parking brake as necessary in the event of a division of the train.

16.7.2 If the Westcode brake is operative **on the rear unit only** then the brakes must be released on the leading unit and two competent persons must be provided to ride on that unit. One must ride in the leading driving compartment of the leading unit to fulfil the requirements of Section 4, whilst the other must ride in the rear driving compartment of the leading unit prepared to apply the parking brake as necessary in the event of a division of the train. The train may then be driven from the leading driving compartment of the rear unit.

The train may then proceed at a maximum speed of 10 mph to a point where the running lines may be cleared and passengers must be detrained at the first station.

17. GENERAL INSTRUCTIONS FOR ASSISTING, OTHER THAN BY ANOTHER CLASS 317 OR 313 TRAIN

NOTE: The Driver of the failed train must contact the Signalman as soon as possible either by radio, if still operable, or by signal post telephone.

17.1 A failed Class 317 train may be assisted from the front or the rear by:–

17.1.1 Another train with a buckeye coupler.

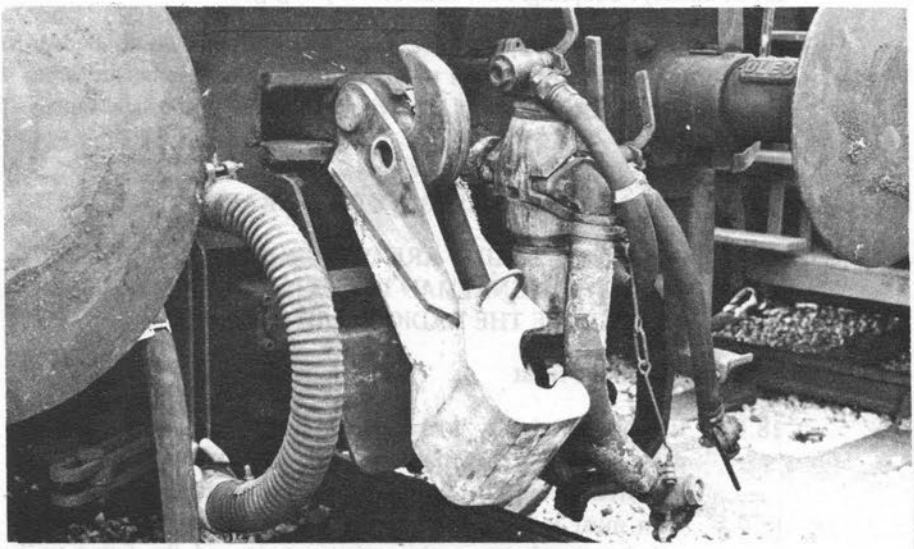
17.1.2 A locomotive or DMMU train fitted with an emergency adaptor coupling (see fig. 18 page 33).

17.1.3 A train which has the last vehicle equipped with a buckeye coupler.

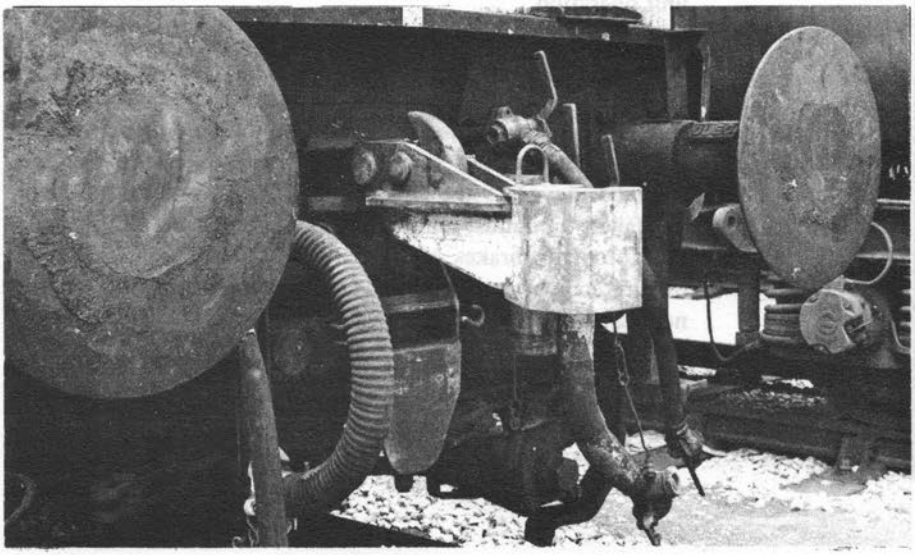
17.2 The Tightlock coupler to which the assisting unit, locomotive or train is to be attached must be isolated electrically i.e. the drum switch must be in the UNCOUPLED position. The knuckle of the Tightlock coupler must then be opened manually.

Fig. 18 Emergency Adaptor Coupling

Coupling fitted to Drawbar–
Main Pin not in position.



Coupling correctly aligned–
Main Pin in position.



At a speed not exceeding 2 mph the assisting unit, locomotive or train may then approach the failed train for the purpose of coupling. A 'pull-away' test must then be made to prove that the tightlock and the adaptor or buckeye couplings have satisfactorily engaged.

17.3 Emergency adaptor couplings are provided at Cricklewood, Bedford and Hornsey and will be fitted to an assisting locomotive before departure. Operations Control must be advised if this method of assistance is required.

18. ASSISTANCE BY ANOTHER CLASS 317 OR 313 TRAIN

NOTE: ONCE THE TRAINS ARE COMBINED IT IS IMPORTANT THAT THE SIGNALMAN IS ADVISED WHICH DRIVER IS TO OPERATE THE RADIO EQUIPMENT.

18.1 Assistance from the front

18.1.1 If brake continuity is available from the leading driving compartment of the assisting train then the combined train must be driven from that compartment. The Driver of the failed train must remove his master key and the intermediate drum switches i.e. between the assisting train and the failed train must be in the COUPLED position i.e. as for normal multiple unit operation.

The combined train may then proceed at normal speeds.

18.1.2 If brake continuity is not available from the leading driving compartment of the assisting train then the intermediate drum switches i.e between the assisting train and the failed train must be moved to the UNCOUPLED position. The Driver of the failed train must remove his master key, isolate and release the automatic brakes of his train and then ride in its leading driving compartment prepared to apply the parking brake as necessary in the event of a division of the train.

The combined train must then be driven from the leading driving compartment at a maximum speed of 10 mph to a point where the running lines may be cleared. Passengers must be detrained at the next station.

18.2 Assistance from the rear

18.2.1 If brake continuity is available, and the driving controls are operable, the combined train must be driven from the leading driving compartment. The Driver of the assisting train must remove his master key. The intermediate drum switches i.e. between the failed unit and the assisting unit must be in the COUPLED position.

The combined train may then proceed at normal speed.

18.2.2 If brake continuity is available, but the driving controls are not operable in the leading driving compartment, then the combined train must be driven at a maximum speed of 20 m.p.h. from the leading driving compartment of the assisting unit. The intermediate drum switches i.e between the failed unit and the assisting unit, must be in the COUPLED position. The Driver of the failed unit must remove his master key and must ride in the leading driving compartment to observe signals and apply the brakes in an emergency. The Driver of the failed unit must signal to the Driver of the assisting unit using the bell or train communication buzzer in accordance with the code shown in Section 9.

18.2.3 If brake continuity is not available and the driving controls are not operable in the leading driving compartment, but communication by means of the bell or train communication buzzer is available, the combined train must be driven from the leading driving compartment of the assisting unit.

The Driver of the failed unit must remove his master key, isolate and release the automatic brake of his train and then ride in the leading driving compartment to observe signals and to signal to the Driver of the assisting unit using the bell or train communication buzzer in accordance with the code shown in Section 9.

A competent person must ride in the rearmost driving compartment of the failed train prepared to apply the parking brake as necessary in the event of a division of the train.

The combined train may then proceed at a maximum speed of 10 m.p.h. to a point where the running lines may be cleared. Passengers must be detrained at the next station.

18.2.4 If brake continuity, driving controls, bell and train communication buzzer are not available from the leading driving compartment, the train must be driven from the leading driving compartment of the assisting unit. The Driver of the failed train must remove his master key, isolate and release the automatic brakes of his train and then ride in the leading driving compartment to observe all signals.

A competent person must ride in the leading vestibule of the failed train whilst another competent person must ride in the rearmost vestibule of the failed train. Both persons must assist the Drivers by exchanging hand signals through the single-leaf doors as necessary and in addition the person in the rearmost vestibule must be prepared to apply the parking brake as necessary in the event of a division of the train.

The combined train may then proceed at a maximum speed of 10 m.p.h. to a point where the running lines may be cleared. Passengers must be detrained at the next station.

19. ASSISTANCE WITH EMERGENCY ADAPTOR COUPLING OR BY TRAIN WITH STANDARD BUCKEYE COUPLER

19.1 Assistance may be given from the front or the rear.

19.2 After coupling the assisting locomotive or train to the failed train the Driver of the failed train must remove his master key and then isolate and release the automatic brakes on the failed train.

19.3 When assistance is being given from the rear a competent person must ride in the rearmost driving compartment prepared to apply the parking brake as necessary in the event of a division of the train.

Another competent person must ride in the leading vestibule of the failed train and both persons must assist the Drivers by exchanging hand signals as necessary.

19.4 When assistance is being given from the front the Drive of the failed train must be prepared to apply the parking brake as necessary in the event of a division of the train.

19.5 The train may then be moved at a maximum speed of 10 m.p.h. to a point where the running lines may be cleared. Passengers must be detrained at the next station.

20. MOVEMENT OF UNITS WITH MATCH VEHICLES

20.1 For planned movements e.g. to and from BREL Workshops, match vehicles are available fitted with screw couplings and side buffers at one end, and the mechanical portion of a Tightlock coupler at the other.

A match vehicle is required at each end of the train and arrangements for the movement will be made by the Regional Operations Manager and M & E E Department.

21. ASSISTANCE OF OTHER TYPES OF TRAIN BY CLASS 317 UNITS

21.1 A Class 317 train may be used to assist in the rear any other type of train to which it can be mechanically coupled, providing it does not exceed its own weight.

The failed train may then be propelled at a maximum speed of 10 m.p.h. to a point where the running lines may be cleared.

21.2 When assisting a failed train the driver's power controller must not be opened beyond notch 2.

22. TRAIN DIVIDED

22.1 If a train becomes divided the brakes will be applied automatically on both portions.

The Driver must apply the parking brakes on the rear portion of the train before carrying out the requirements of the Rule Book.

Under no circumstances must the two portions of the train be recoupled or any other Tightlock, Buckeye or emergency adaptor coupler be attached to either Tightlock coupler at the point of division, until authority to recouple has been given by Maintenance staff.

22.2 If, however, it is expedient to move the two portions of the train separately, the drum switches on the ends at which the division has occured must be moved to the UNCOUPLED position. The two units may then be moved separately.

22.3 Alternatively, it is permissible, after carrying out the procedure in Clause 22.2 to reposition the rear unit at the front of the train and then proceed.

23. FIRES

23.1 Two types of fire extinguisher are provided:

23.1.1 BCF (Bromochlorodifluoromethane) extinguishers are coloured yellow or have a yellow band and may be used, if necessary, before electricity is switched off. THESE MAY BE USED TO DEAL WITH FIRES BOTH INSIDE AND OUTSIDE THE TRAIN, BUT IMMEDIATELY AFTER THE EXTINGUISHER HAS BEEN USED ALL PERSONS MUST LEAVE THE VEHICLE AND THE DOORS MUST BE CLOSED.

BCF is a volatile liquid which disperses very rapidly when exposed to the open air. Care should be taken to avoid contact with, or inhaling of, the vapour.

If contact is made with the vapour, the following precautions should be taken:

(a) Remove the person concerned away from the discharge area, to a place where there is plenty of fresh air. Arrange for medical aid if the person appears to have been affected by the vapour stating that he has been affected by the discharge of a BCF extinguisher.

(b) If any liquid from a fire extiguisher enters the eyes, flush them as soon as possible with large quantities of water.

23.1.2 Water extinguishers or extinguishers containing water are painted RED. These extinguishers, or indeed water or hoses, must NEVER be directed onto live electrical equipment, but may be used before the electricity is switched off provided EXTREME CARE is taken not to direct the jet towards the live electrical equipment. If it is necessary to direct the jet towards overhead line equipment or other electrical equipment, this must NOT be done until the electricity has been switched off. Water should not be used if other suitable means of extinguishing the fire are available.

On EMU trains the electricity is switched off by lowering the pantographs and, whenever possible, by pressing the AUXILIARIES TRIP button. The overhead line equipment remains live until an isolation is obtained.

23.2 Fires are rare events but should an outbreak require the evacuation of a vehicle then the Driver must make every effort to ensure that it is controlled evacuation and that passengers do not endanger themselves by alighting from the train on the 'wrong' side into the path of another train before all lines can be blocked.

ONCE IT IS REALISED THAT EVACUATION MAY BE NECESSARY IT IS VITAL THAT THE DRIVER IMMEDIATELY USES THE RADIO COMMUNICATION TO ASK THE SIGNALMAN TO STOP ALL TRAINS. DEPENDING UPON THE DISPOSITION OF OTHER TRAINS THIS WILL BE ACHIEVED BY EITHER REPLACING SIGNALS TO DANGER OR BY USE OF THE 'STOP' RADIO SIGNAL. HOWEVER IT MUST NOT BE ASSUMED THAT IT HAS BEEN POSSIBLE TO STOP ALL OTHER TRAFFIC AND THE DRIVER MUST WARN PASSENGERS TO STAND WELL CLEAR OF ALL LINES ONCE THEY HAVE ALIGHTED.

It is acknowledged that it is difficult to instruct passengers which is the 'safe' side to alight, particularly in a 'panic-type' situation, and the action that the Driver takes is governed by the circumstances at the site of the incident.

23.3 Only the Driver can decide on the action to be taken, based on his assessment of the situation, but a typical course of action once the train has been brought to a stand might be:–

23.3.1 Immediately radio the Signalman and ask that:–

(a) All other trains be stopped.

(b) The emergency services be alerted.

23.3.2 Use the P.A.S. to:–

(a) Advise passengers that an emergency has arisen and that the doors will be opened for them (on the 'safe' side) to enable them to alight if necessary (i.e. if they are in the affected vehicle). Passengers should be told that once clear of the train they should stand well clear of all lines.

(b) Ask any railway staff travelling to assist.

23.3.3 Have the BCF fire extinguishers available for use.

23.3.4 Obtain the emergency ladders from the DTS vehicles and assist less-nimble passengers to alight.

23.3.5 Use the hand fire extinguishers as appropriate.

23.3.6 Protect the train in accordance with the Rule Book Section M.

24. REPORTING OF DEFECTS IN SERVICE

The Driver must be alert for unusual noises, unusual operation of the train or defects in external equipment, such as overhead line equipment. Any usual features must be reported at the first opportunity, making a special stop to do so if necessary.

Other defects must be reported, depending upon the urgency of the situation as follows:–

24.1 If it is considered that the train must be taken out of service – by radio, or at the nearest telephone or station.

24.2 If the defect is considered to need urgent attention – at the first appropriate stopping point or depot.

24.3 If the defect requires attention – immediately after completing the journey or when being relieved.

NOTES: 1. The Driver's report must include his name, the reporting number of the train, a concise description of the trouble (including the number of the defective unit and vehicle), where the defect occurred and, when applicable, where the train is standing.

2. When the defect is reported direct to the Electrical Maintenance Depot, the Driver must ensure that Operations Control is also informed. Signalman, station or other staff receiving any reports of defects etc. must telephone the messages immediately to Operations Control who must advise the Electrical Maintenance Depot and/or Electrical Control Operator as necessary.

3. All defects must be entered into the repair book/ defect book sheet irrespective of whether they have been reported to other persons or not.

4. When a train is stabled and there are defects that would prevent a unit from re-entering passenger service then Operations Control must be specially advised.

25. PASSENGER COMMUNICATION EQUIPMENT (PASSCOM) – (see figs. 19 and 20 pages 42 and 43)

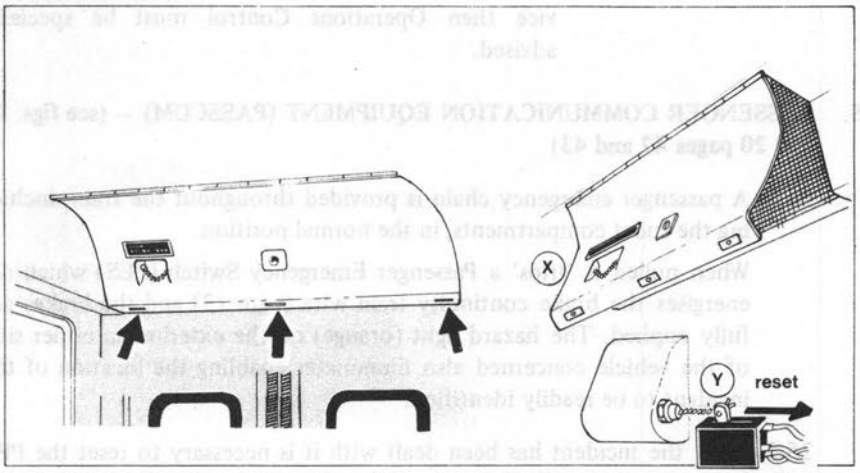
25.1 A passenger emergency chain is provided throughout the train, including the toilet compartments, in the normal position.

When pulled it 'trips' a Passenger Emergency Switch (PES) which de-energises the brake continuity train wire (wire 13) and the brakes are fully applied. The hazard light (orange) on the exterior on either side of the vehicle concerned also illuminates enabling the location of the incident to be readily identified.

25.2 Once the incident has been dealt with it is necessary to reset the PES before the brakes can be released. The PES is situated behind the access panel above each double leaf or single leaf door, both of which may be opened by a standard carriage key.

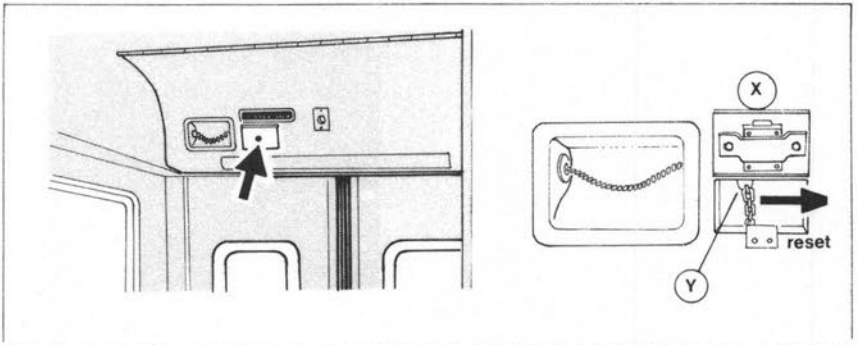
To reset the switch the protecting arm at the top needs to be pushed to one side to 'tighten' the emergency chain.

Fig. 19 Passenger Communication Equipment (PASSCOM) - Double leaf doors



RESETTING THE PASSCOM ABOVE THE DOUBLE DOORS ON CLASS 317/1 TRAINS

A hinged panel above the doors is unlocked with a carriage key (arrows show where). The panel (X) can then be lowered to provide access to the passcom switch (Y) and its attached chain. To reset, move passcom switch to the right as shown; close panel and lock.



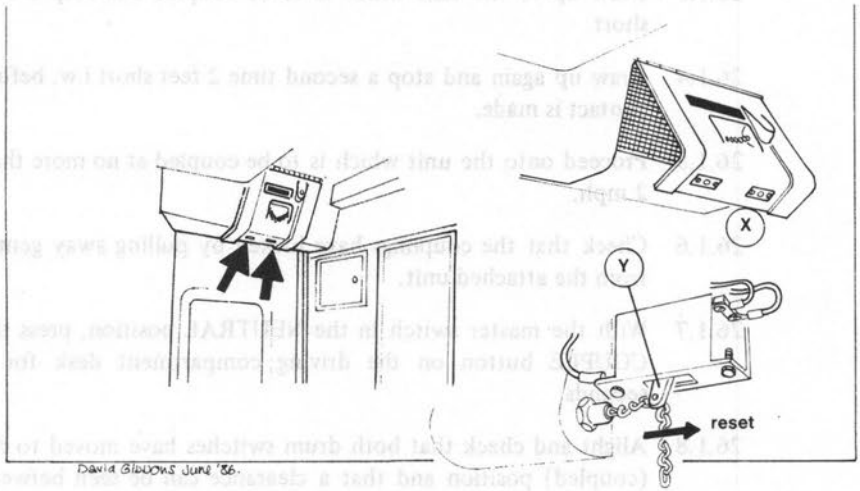
RESETTING THE PASSCOM ABOVE THE DOUBLE DOORS ON CLASS 317/2 TRAINS

A small, passcom reset panel (X) is provided on the right of the passcom which is unlocked with a carriage key, the arrow shows where. To reset, lift panel (X), move passcom switch (Y) and its attached chain to the right, lower panel and lock.

Fig. 20 Passenger Communication Equipment (PASSCOM) - Single leaf doors

RESETTING THE PASSCOM ABOVE SINGLE LEAF DOORS, CLASS 317/1 AND 317/2 TRAINS

Unlock hinged panel above door with a carriage key (arrows show where). Lower panel (X) and reset passcom switch (Y) and its attached chain by moving it to the right as shown; lower panel and lock.



26. COUPLING AND UNCOUPLING

26.1 Coupling of these units is only to be performed by a Driver using the following procedure:

26.1.1 Check that the jaw of at least one of the Tightlock automatic couplings is open.

26.1.2 Check that the covers over the connection block on both couplings are closed.

26.1.3 Draw up to the unit which is to be coupled and stop 6 feet short.

26.1.4 Draw up again and stop a second time 2 feet short i.w. before contact is made.

26.1.5 Proceed onto the unit which is to be coupled at no more than 2 mph.

26.1.6 Check that the couplings have locked by pulling away gently from the attached unit.

26.1.7 With the master switch in the NEUTRAL position, press the COUPLE button on the driving compartment desk for 2 seconds.

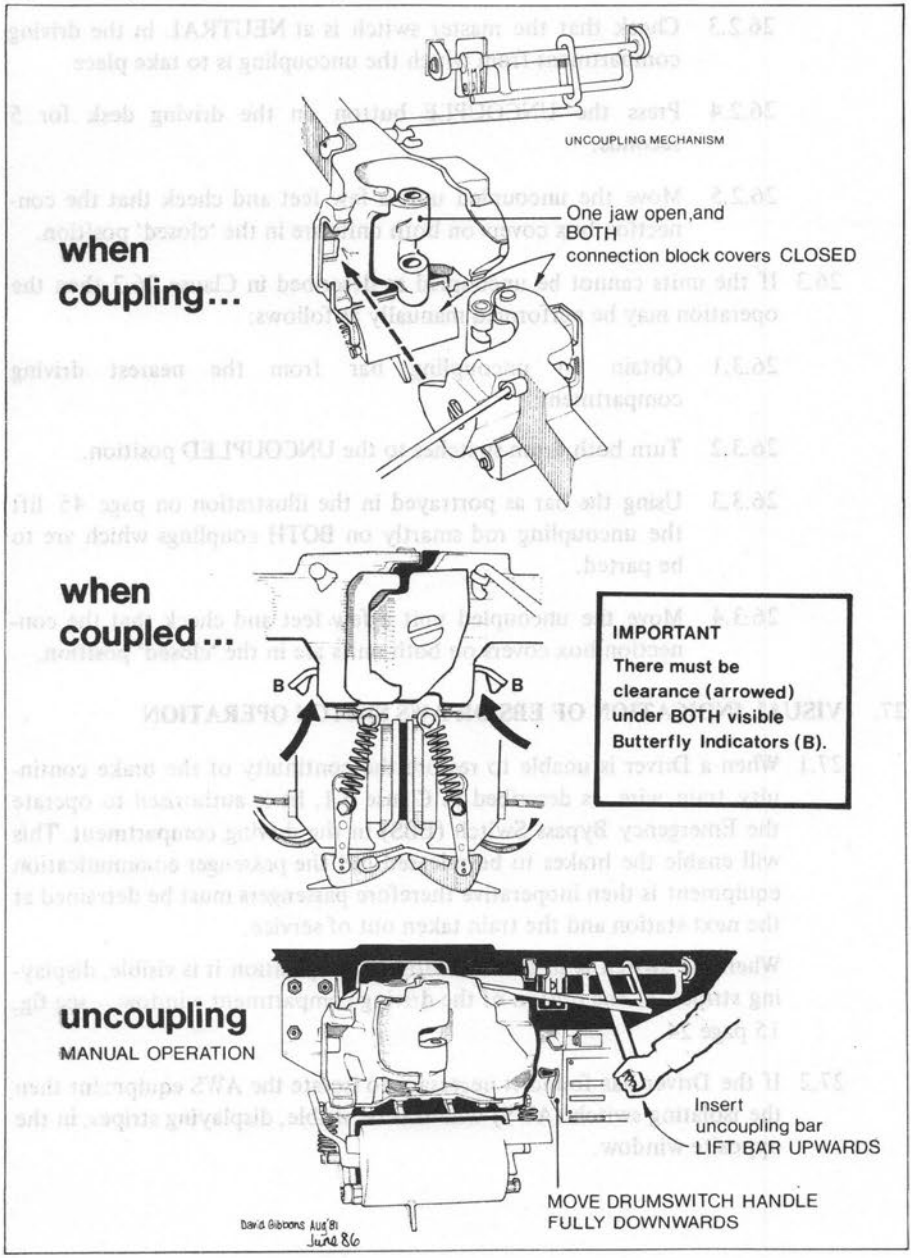
26.1.8 Alight and check that both drum switches have moved to the (coupled) position and that a clearance can be seen between both butterfly indicators and coupler bodies (see fig. 21 page 45).

NOTE: If the first attempt to couple two units is unsuccessful then it is essential that **before another attempt is made**, that the Driver alights after the units have been moved apart, to check that the connection block covers have reclosed. If one cover has not properly closed then damage will be caused if the other properly-closed cover comes into contact with the now-exposed electrical connection block.

26.2 Uncoupling of these units is normally undertaken by the Driver, using the following procedure:

26.2.1 Check that the main reservoir pressure is at least 5.4 bar.

Fig. 21 Tightlock autocoupler



26.2.2 Apply the brakes on the unit that is to be left.

26.2.3 Check that the master switch is at NEUTRAL in the driving compartment from which the uncoupling is to take place.

26.2.4 Press the UNCOUPLE button on the driving desk for 5 seconds.

26.2.5 Move the uncoupled unit a few feet and check that the connection box covers on both units are in the 'closed' position.

26.3 If the units cannot be uncoupled as described in Clause 26.2 then the operation may be performed manually as follows:

26.3.1 Obtain an uncoupling bar from the nearest driving compartment.

26.3.2 Turn both drum switches to the UNCOUPLED position.

26.3.3 Using the bar as portrayed in the illustration on page 45 lift the uncoupling rod smartly on BOTH couplings which are to be parted.

26.3.4 Move the uncoupled unit a few feet and check that the connection box covers on both units are in the 'closed' position.

27. VISUAL INDICATION OF EBS OR AWS SWITCH OPERATION

27.1 When a Driver is unable to restore the continuity of the brake continuity train wire, as described in Clause 6.1, he is authorised to operate the Emergency Bypass Switch (EBS) in the driving compartment. This will enable the brakes to be released but the passenger communication equipment is then inoperative therefore passengers must be detrained at the next station and the train taken out of service.

When the switch is in the 'raised/isolated' position it is visible, displaying stripes, at the botton of the driving compartment window – see fig. 15 page 24.

27.2 If the Driver has found it necessary to isolate the AWS equipment then the isolating switch (AWS) will also be visible, displaying stripes, in the opposite window.

28. RETENTION TOILETS – CLASS 317/1 L.M.R. UNITS ONLY

28.1 These are provided at one end of the TC vehicle and the effluent, instead of being deposited upon the track, is retained on a tank on the underframe – see fig. 22 page 47.

28.2 Should this tank become 7/8 full then a liquid level switch, which has its pressure head located within the tank, operates to:–

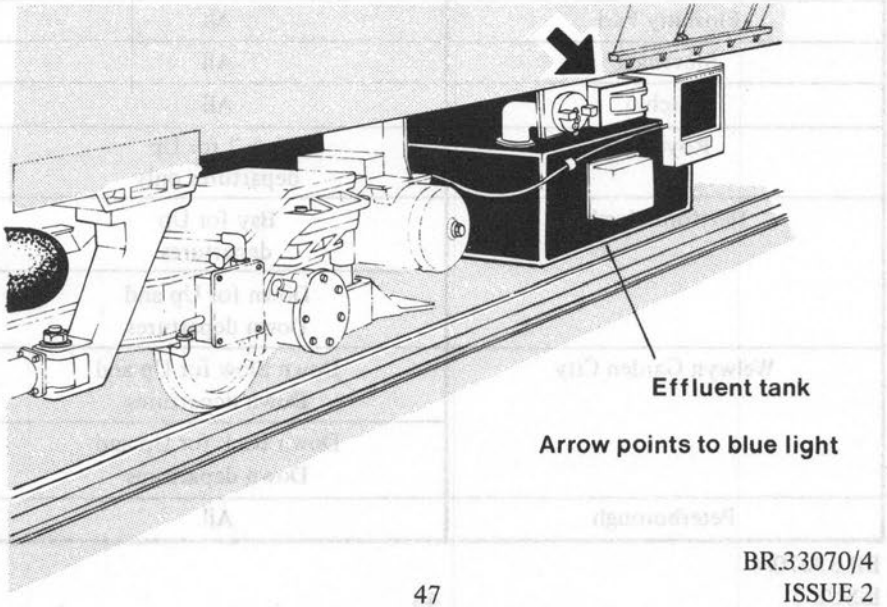
28.2.1 Illuminate the 'toilet out of order' signs adjacent to the toilet doors.

28.2.2 Illuminate the blue warning lights on the underframe above the tank on either side of the vehicle as an indication to staff that the tank requires emptying.

28.3 In the event of continued use of the toilets an overflow pipe direct to the tank is provided to prevent the retention system becoming overfull and 'backing-up' to the toiler hoppers.

NOTE: Special maintenance arrangements are necessary for the retention system which must only be emptied at the pre-selected depots equipped with the necessary discharge installations. These provide for the neutralisation of any bacteria present.

Fig. 22 Retention toilets
Trailer second, Class 317/1 only



29. STARTING OF TRAINS

29.1 At manned stations the 'ready to start' signal will be given by the person in charge of the platform in accordance with the Rule Book, Section H.

29.1.1 On LMR lines the manned stations are:–

St. Pancras, Moorgate, St. Albans, Luton and Bedford.

29.1.2 On ER lines the manned stations are:–

Kings Cross, Finsbury Park, Stevenage, Hitchin, Royston, Hertford North, Welwyn Garden City, Peterborough.

At more important stations or strategic interchange points, manned for 24 hours each day, 'Right Away' (RA) indicators are provided operated by platform staff. The pressing of a plunger will, providing the signal in advance of the platform is displaying a 'proceed' aspect, illuminate an 'R' indicator at the platform end. This signal will indicate to the Driver that platform duties are complete and that he may close the doors and depart. RA indicators are provided:–

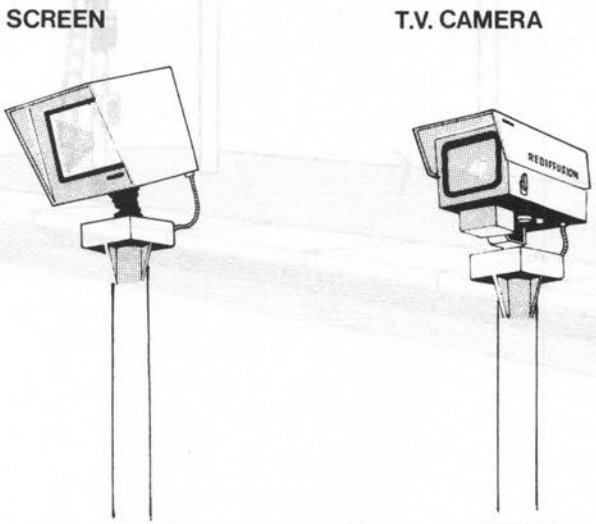
Station	Platforms
Kings Cross	All
Finsbury Park	All
Stevenage	All
Hitchin	All
Royston	1 & 2 for Up departures only
Hertford North	Bay for Up departures
	Down for Up and Down departures
Welwyn Garden City	Down Slow for Up and Down departures
	Down Back for Up and Down departures
Peterborough	All

29.2 At unmanned stations the Driver must act in accordance with the instructions in the Rule Book, Section H and satisfy himself that all is in order for the train to proceed. Closed Circuit Television (CCTV) equipment or mirrors are provided on platforms where required to assist Drivers to carry out this duty.

30. CLOSED CIRCUIT TELEVISION (CCTV) EQUIPMENT

30.1 The equipment consists of cameras and monitor screens located on those platforms where the Driver requires assistance in observing the requirements of the Rule Book, Section H.

Fig. 23 CCTV Equipment

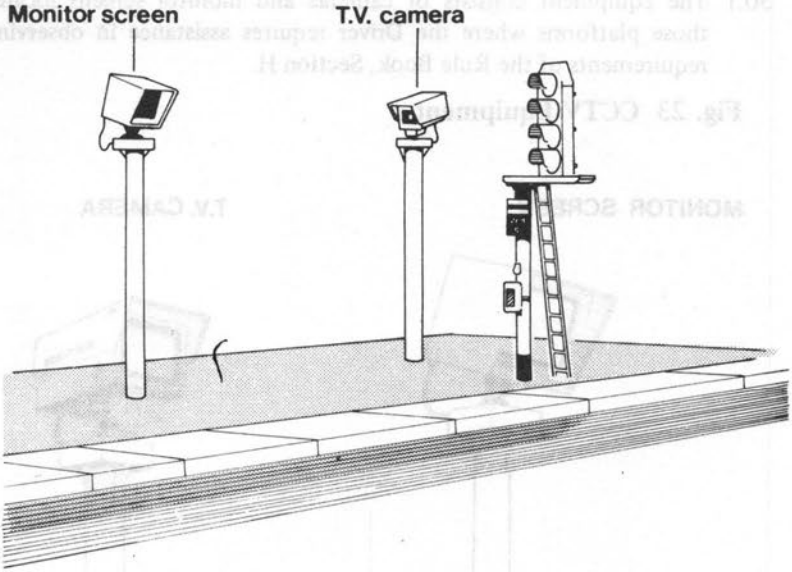


The equipment is self-contained for a particular location, in that the cameras provide surveillance on the platforms and the only monitor screens are on the platforms. The pictures are not relayed to any other location on the station or elsewhere.

30.2 The cameras are specially sited for each location and take into account the curvature of the platform the position of station buildings, waiting shelters, footbridges etc.

30.3 The monitor screens are normally located approximately six feet in the rear of the train stop marker boards, in order that Drivers may easily observe them.

Fig. 24 Relationship Monitor to Camera

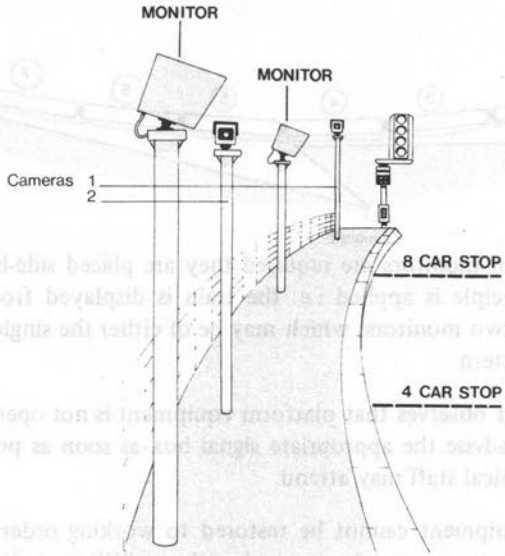


NOTES: 1. Details of the equipment are listed in Tables 1A & 1B on pages 56 & 57.

2. The cameras are either switched on continuously or are switched on by track circuit occupation therefore a picture should be displayed on the monitor screens on the approach of a train.

30.4 Where one camera is unable to cover the required area others are provided as necessary, numbered from the forward end of the platform with monitors according to the train stop boards.

Fig. 25 Monitors on curved platforms



30.5 On LMR lines, where one monitor is required to display the pictures from two cameras, it is provided with a split screen in that the left hand half of the screen portrays the view seen by the forward camera 1 whilst the right half portrays that seen by the rear camera 2, thus providing continuity of view from left to right.

Fig. 26 (i) Split-Screen Monitor

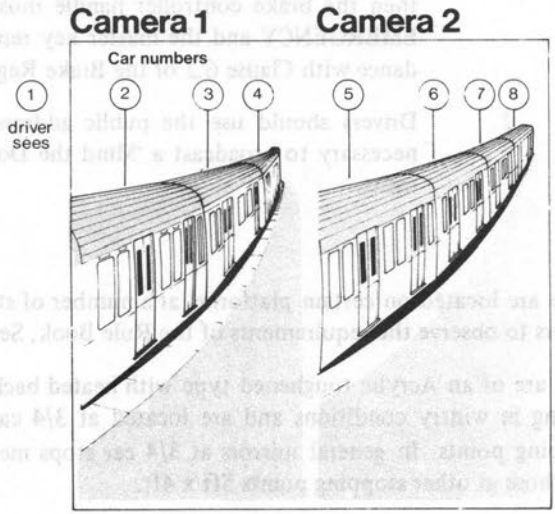
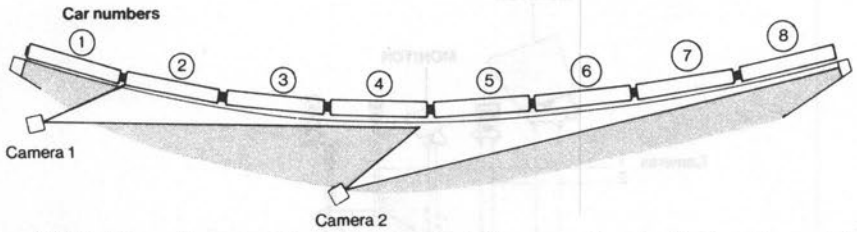


Fig. 26 (ii) Eight car train on curved platform



30.6 Where two monitors are required they are placed side-by-side and the same principle is applied i.e. the train is displayed from left to right over the two monitors, which may be of either the single image or split screen pattern.

30.7 If a Driver observes that platform equipment is not operating correctly he must advise the appropriate signal box as soon as possible in order that technical staff may attend.

30.8 If the equipment cannot be restored to working order the associated monitor screens must be marked with an "X" to indicate to Drivers that there is no need to report the defect.

30.9 At stations where a monitor is not working Drivers must alight from the train if necessary to fulfill the requirements of Section H of the Rule Book.

NOTE: 1. If the Driver does leave the driving compartment then the brake controller handle must be moved to EMERGENCY and the master key removed in accordance with Clause 6.2 of the Brake Regulations.

2. Drivers should use the public address system when necessary to broadcast a 'Mind the Doors' announcement.

31. MIRRORS

31.1 These are located on certain platforms at a number of stations to assist Drivers to observe the requirements of the Rule Book, Section H.

31.2 They are of an Acrylic toughened type with heated backing to prevent misting in wintry conditions and are located at 3/4 car, 6/8 car or S stopping points. In general mirrors at 3/4 car stops measure 4ft x 3ft and those at other stopping points 5ft x 4ft.

31.3 **On ER Lines the locations are:–**

Station	Platform	No. of Mirrors	Position
Harringay	Down	2	3 & 6 car
Hornsey	Up	2	3 & 6 car
Alexandra Palace	Down Hertford	2	3 & 6 car
Bowes Park	Down	2	3 & 6 car
	Up	2	3 & 6 car
Grange Park	Down	2	3 & 6 car
Gordon Hill	Up	1	6 car only
Bayford	Down	2	3 & 6 car
New Southgate	Down Slow	1	Combined 3/6 car
	Up Slow	2	3/6 car
New Barnet	Down Slow	1	Combined 3/6 car
	Up Slow	2	3 & 6 car
Hadley Wood	Down Fast	2	3 & 6 car
	Up Fast	1	Combined 3/6 car
Potters Bar	Up Slow	2	3/4 & 6/8
Hatfield	Down Slow	3	3/4 & 6 & 8
Welwyn G. C.	Up Back	2	3/4 & 6/8
Knebworth	Down Slow	2	3/4 & 6/8
Biggleswade	Up Fast	2	4 & 8 car
Sandy	Down	2	4 & 8 car
St. Neots	Down Slow	2	4 & 8 car
	Up Slow	1	Combined 4/8 car

Fig. 27 Dual Monitors

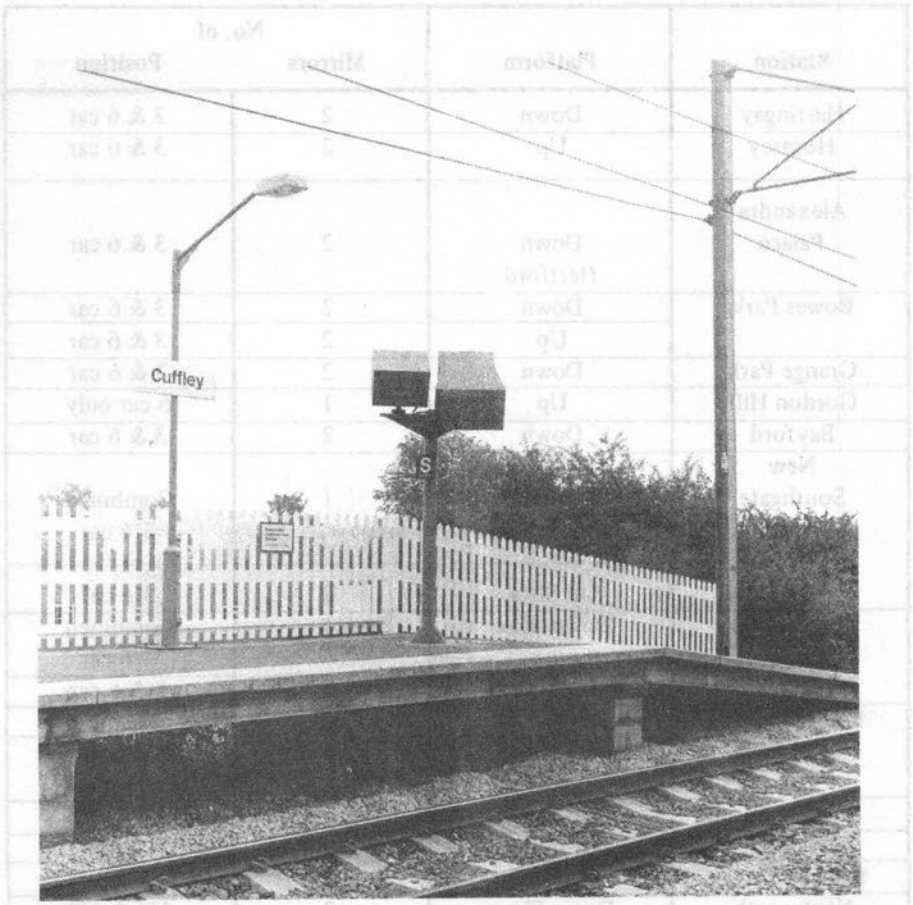


Fig. 28 Mirror Installation

DOWN	PLATFORM	STATION	PLATFORM	UP
4 CAR [nil] 8 CAR [ ]	5	MOORGATE	—	———
4 CAR [nil] 8 CAR [ ]	6			
4/8 CAR [ ]	4	BARBICAN	3	4/8 CAR [ ][ ] [ ][ ]
4 CAR [ ] 8 CAR [ ][ ]	4	FARRINGDON	3	4 CAR [ ] 8 CAR [ ][ ]
4/8 CAR [ ][ ] [ ]	B	KINGS CROSS	A	4 CAR [ ][ ] 8 CAR [ ][ ] [ ][ ]
4/8 CAR [ ]	2 (Moorgate)	KENTISH TOWN	1 (Moorgate)	4 CAR [ ][ ] 8 CAR [ ][ ] [ ]
4/8 CAR [ ]	4 (Down & Up Slow northbound)		4 (Down & Up Slow southbound)	4 CAR [nil] 8 CAR [ ]

DOWN FAST PLATFORM 4	DOWN SLOW PLATFORM 2		UP FAST PLATFORM 3	UP SLOW PLATFOR
4 CAR [nil] 8 CAR [ ][ ]	4 CAR [nil] 8 CAR [ ][ ]	WEST HAMPSTEAD	4/8 CAR [ ]	4/8 CAR [ni
4 CAR [nil] 8 CAR [ ]	4/8 CAR [ ]	CRICKLEWOOD	4 CAR [ ] 8 CAR [ ][ ]	4 CAR [ ] 8 CAR
4 CAR [ ] 8 CAR [ ][ ]	4 CAR [ ] 8 CAR [ ][ ]	HENDON	4/8 CAR [ ]	4/8 CAR [

Table 1B – G.N. Suburban Lines – Location of CCTV Equipment

Station	Platform	No. of Monitors	Position
Harringay	Up	1	3 car
		2	6 car
Alexandra Palace	Up Slow	2	3 car
		3	6 car
	Up Fast	1	3/4 car
		2	6/8 car
Winchmore Hill	Up	3	S combined
Enfield Chase	Up	1	3 car
		2	6 car
Cuffley	Up	2	S combined
Oakleigh Park	Down Slow	1	3 car*
		2	6 car*
	Down Fast	1	3 car
		2	6 car
	Up Slow	2	3 car*
		3	6 car*
Potters Bar	Down Slow	2	3/4 car*
		3	6/8 car*
Brookmans Park	Down Slow	2	S combined
	Up Slow	1	3 car*
		2	6 car*
Hatfield	Up	1	3/4 car
		2	6 car
		3	8 car
Knebworth	Up Slow	1	3/4 car*
		2	6/8 car*
Baldock	Down	1	3/4 car
		2	6/8 car
	Up	1	S combined
Biggleswade	Down Slow	3	4/8 car*
	Up Slow	2	4 car*
		3	8 car*
Sandy	Down	1	8 car
St. Neots	Up Fast	3	4/8 car
Huntingdon	Up	2	4 car
		3	8 car

NOTE: In the 'Position' column * denotes stations with platforms which are 'offside' to the driving position, at which the monitors are positioned 'nearside', so that the Driver does not leave his seat to view them.